ENGINEERING NEWS-RECORD

AUGUST 29, 1957

ITEM IN CASE
CONTINUED ON PAGE 17

- Are bankers boycotting the FHA now? p. 31
- Bridge blasted for more headroom p. 33

Savings found in faced rockfill dams p. 38

A McGRAW-HILL PUBLICATION

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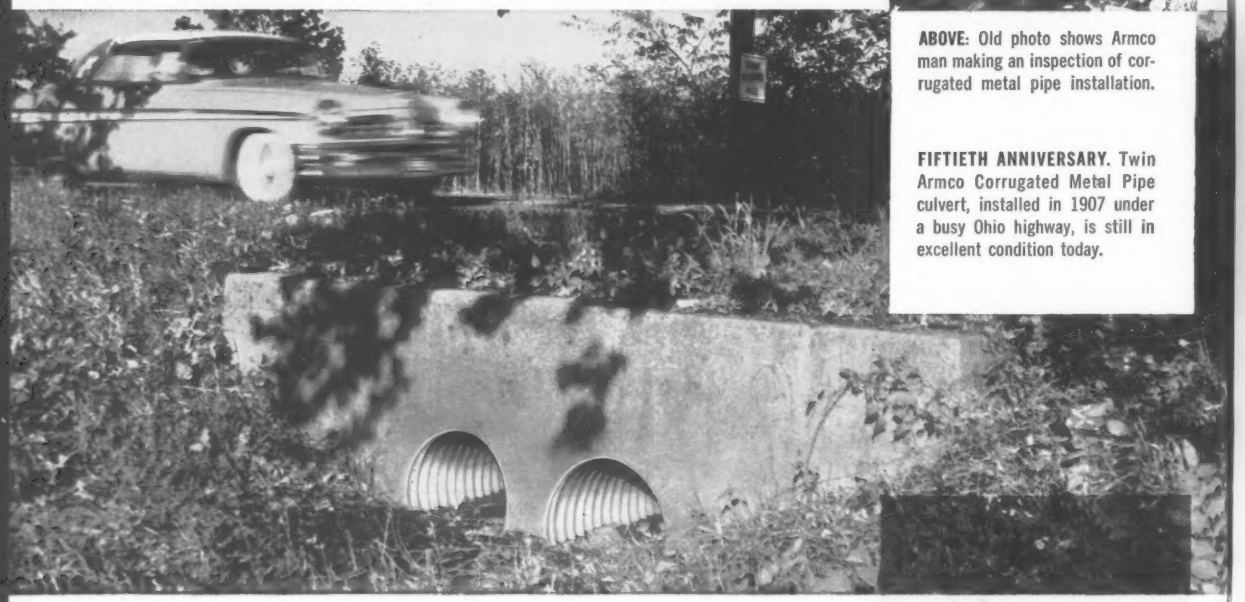
Used on the Nation's Highways Since 1906, Armco Drainage Products Offer You Proved Durability

Armco, Pioneer of Corrugated Metal Drainage Structures, Gives You Assurance of Low Cost Through Long Life

ABOVE: Old photo shows Armco man making an inspection of corrugated metal pipe installation.



FIFTIETH ANNIVERSARY. Twin Armco Corrugated Metal Pipe culvert, installed in 1907 under a busy Ohio highway, is still in excellent condition today.

For the past half-century, Armco Corrugated Metal Drainage Products have been installed under highways all over the country. Many of these old structures are still giving good service today.

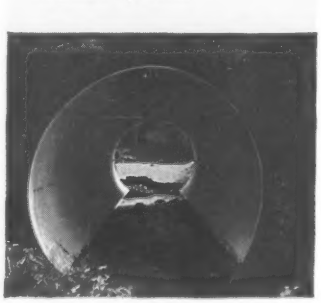
Having the advantage of the first Research Division in the steel industry, Armco started early in making field inspections and laboratory tests. These studies helped confirm the durability of Armco Products and aided in developing new ones.

Photos on this page typify the continuing research programs on the durability of Armco Products. To demonstrate their wide acceptance, many corrugated metal drainage products developed or originated by Armco are considered "standard" by highway engineers today.

Hundreds of Armco Sales Engineers, located in all sections of the country, are qualified to help you find an economical solution to drainage problems. And they can assist in expediting delivery of structures from one of the 55 Armco manufacturing plants.

More than 30 Armco Products are supplied for various highway, municipal, railway, and industrial applications. For specific data, write us. Armco Drainage & Metal Products, Inc., 5627 Curtis Street, Middletown, Ohio. Subsidiary of Armco Steel Corporation. In Canada: write Guelph, Ontario. Export: The Armco International Corporation.

SMOOTH-FLO® Sewer Pipe, a new improved product, is designed to assure top flow capacity. It is a typical example of developments originated by Armco.



MULTI-PLATE® is typical of products developed by Armco that have become "standard" structures. This 1931 installation is still in fine shape.

ARMCO CONSTRUCTION PRODUCTS

Four more improvements in the Barber-Greene Finisher

Four new improvements give the Barber-Greene Finisher faster speed, faster travel, lower maintenance cost and increased power.

Improving the Barber-Greene Finisher is not something new. Scores of major improvements have been embodied in its design since it was first released to the field 20 years ago.

These improvements have been incorporated without spectacular announcements or fanfare. They have all been based on vast experience. In fact, the Barber-Greene Finisher is now paving its second million miles, which is many times the mileage and tonnage records of all other asphalt paving machines in the world combined.

These are all proven, sound improvements developed from experiences in laying every type of mix, in virtually all conditions. Machines embodying this group of design changes are now in production and are designated as the Model 879-B.

Latest improvements include:

NEW TRANSMISSION—Provides both higher operating and travel speeds. The new transmission still provides 12 forward speeds giving a wider range of operation.

HIGHER SPEED TAMPER—This new design permits faster laying speeds and reduces maintenance costs.

NEW CRAWLERS—Precision-drilled pads and larger pins will further decrease maintenance costs.

NEW POWER UNIT—20% more power. This means pushing even bigger trucks, handling even steeper grades, greater reserve for high altitude, and higher speeds of operation.

Note To Barber-Greene Finisher Owners

These latest improvements, as well as many previous improvements, can be incorporated in your old machine. Necessary parts are now made up in kit form for each modification separately. A folder describing the various kits is available.

Barber-Greene BG

AURORA, ILLINOIS, U.S.A.

CONVEYORS . . . LOADERS . . . DITCHERS . . . ASPHALT PAVING EQUIPMENT

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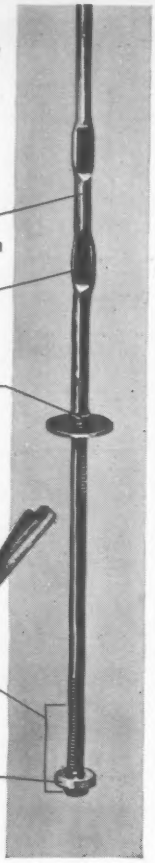
all this



1 Full-size Rod (.225 diameter) for maximum strength.

2 Offset Type Flats for better anchorage to prevent turning.

3 Upset behind spreader washer for positive wall size (loose or restrained washers optional).

4 Durable, malleable iron TY-Holder that is bottom-heavy and ribbed for stability. Needs no nailing!!

5 Well-formed Heads. No interference from die marks. A quality tested, precision-built TY.

6 Uniform, flat-surfaced Head Washer that insures proper bearing.

If it is not
Richmond
it is not a
Snap-TY

Over thirty types of Snap-TYS are available—a type for every need. And all are proved, tested products with Richmond's 46 years of experience behind them.

These are the reasons why it will pay you to insist on Richmond Snap-TYS. INSIST on Richmond and BE SURE it's Richmond! Send for current Richmond Handbook which describes the full line. Write: RICHMOND SCREW ANCHOR COMPANY, INC., 816 Liberty Avenue, Brooklyn 8, New York, or 315 South Fourth Street, St. Joseph, Mo.

ENGINEERING NEWS-RECORD

EIGHTY-THIRD YEAR OF PUBLICATION

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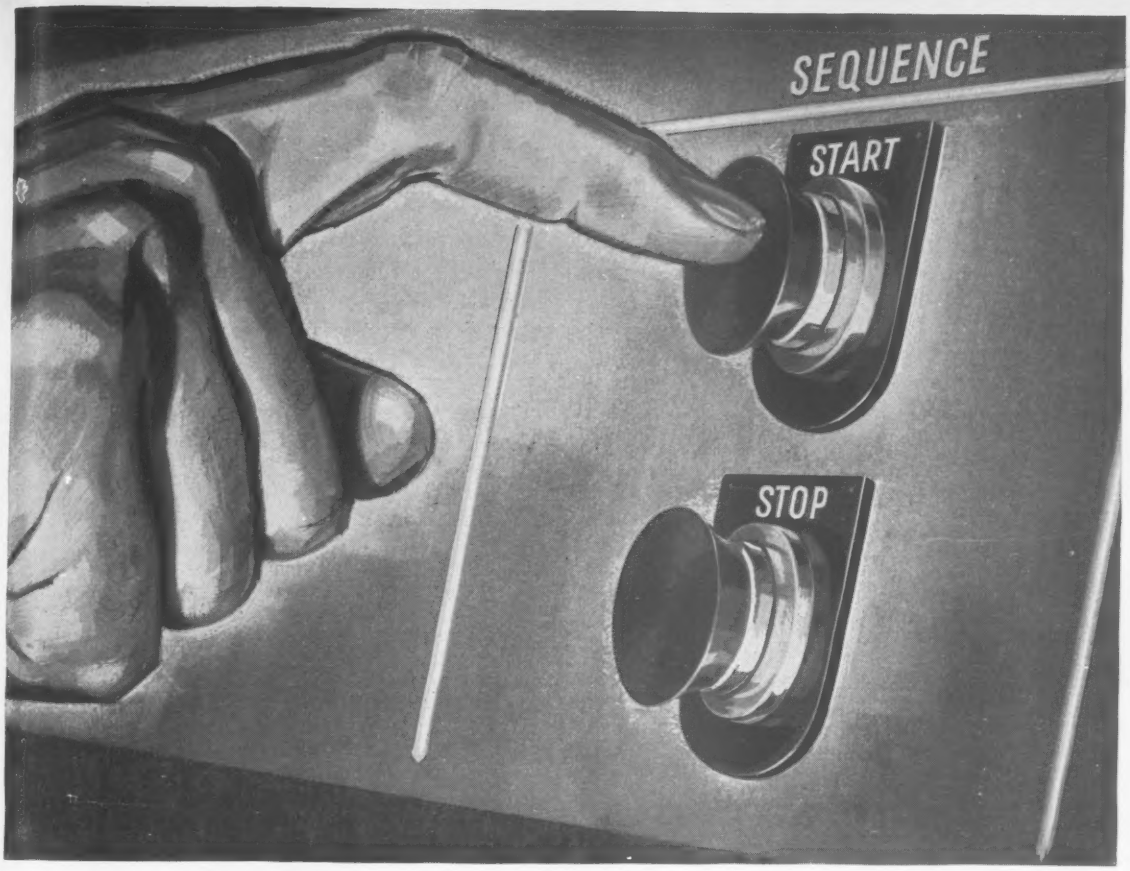
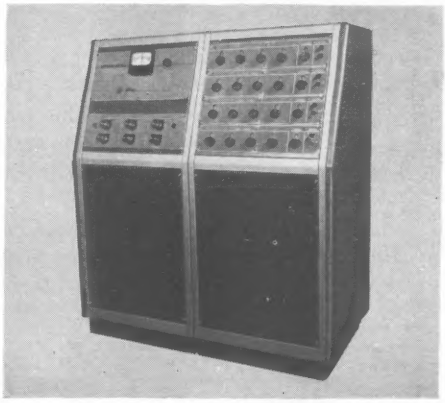


Got a job for the Batchetron?

Here's what it will do. Operating electronically from a remote control station, the Fairbanks-Morse Batchetron can be preset with knobs and buttons to assemble accurate quantities of dry and liquid components from any one or more bins or tanks. The cycle of mix is also preset, and the actual batching takes place at the touch of a button.

Which of these features will improve your batching operation? Do you want remote control—for instance, batching from an air-conditioned office? Do you want the fast programming feature—for the occasional single batch from a different formula? Do you want the automatic cycling—that will duplicate the batch again and again at the touch of a button?

The Batchetron is . . . Fairbanks-Morse electronics instrumentation plus accurate weighing in the Fairbanks-Morse tradition. There is a new bulletin, No. ED-14, on the Batchetron with many suggested applications which may fit your process operations. Send for it today. Fairbanks, Morse & Co., Dept.CE-3,600 South Michigan Ave., Chicago 5, Illinois.



Batchetron control console.

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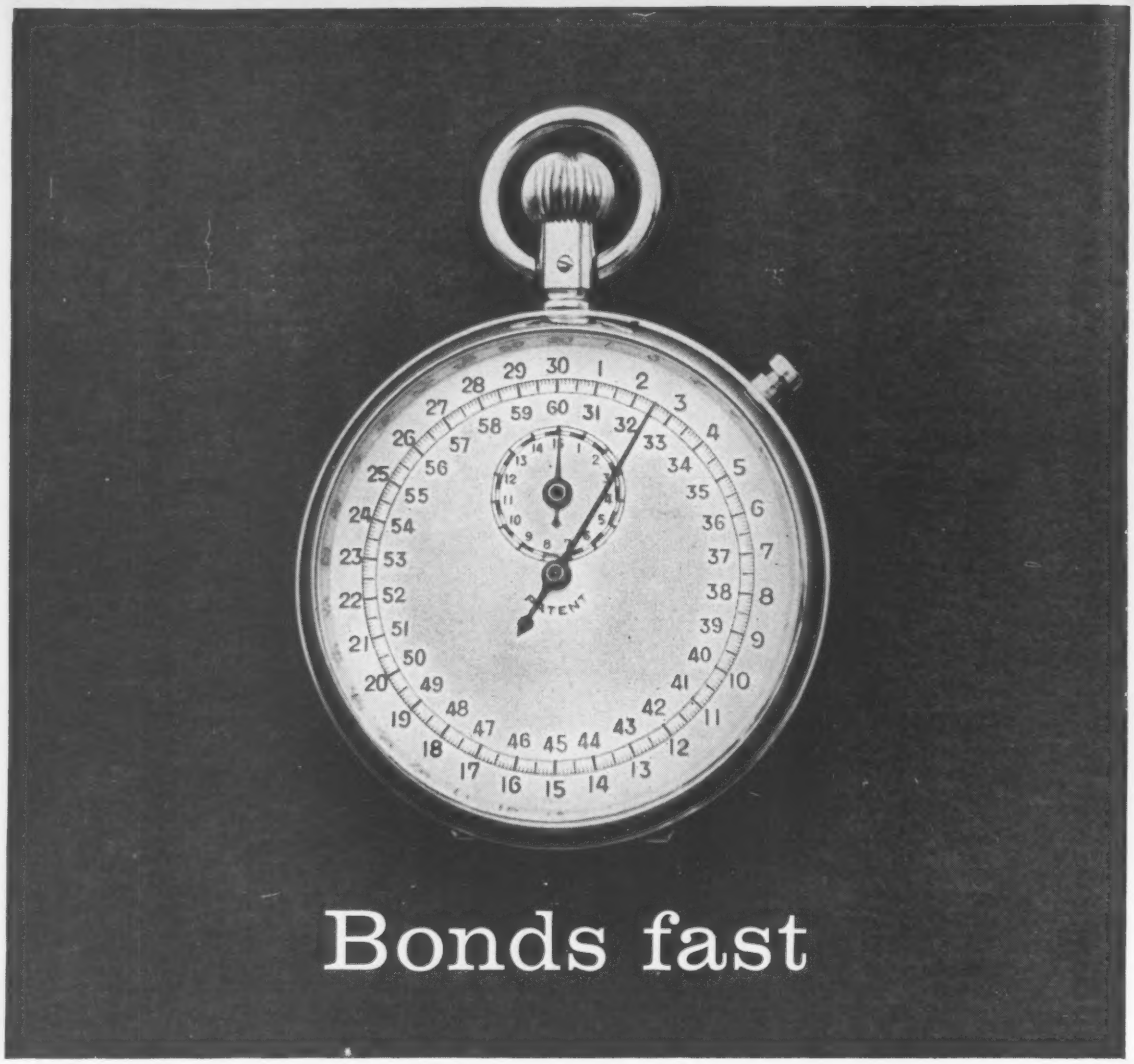
a name worth remembering when you want the BEST

SCALES • PUMPS • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY • RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS



A trained bond specialist will be at your side in no time if you call your Travelers agent.

He's a down-to-earth expert who knows your construction bond problems. He's an authority on local requirements—knows just what you need and what you don't need.

And he's backed by The Travelers—a firm with a nationwide reputation for getting bonds to responsible contractors FAST.

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THE TRAVELERS

INSURANCE COMPANIES, HARTFORD 15, CONNECTICUT

All forms of business and personal insurance including
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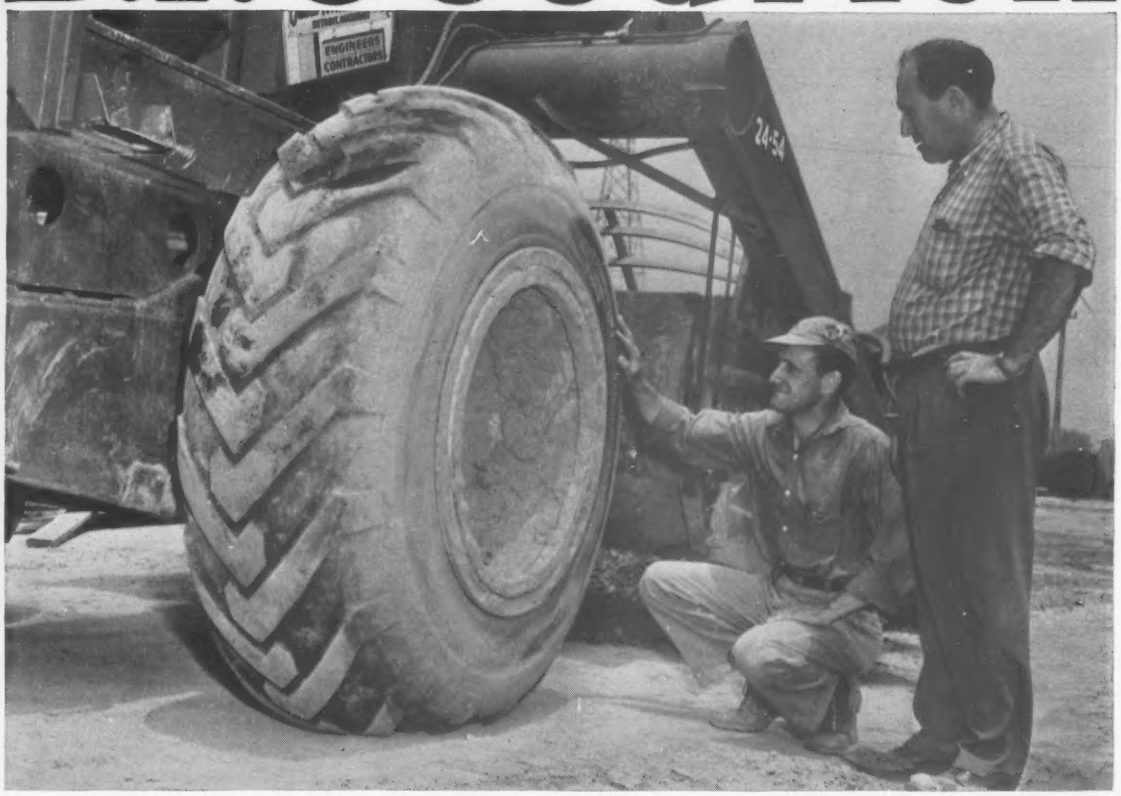
B.F.Goodrich



These tires handle the biggest jobs... give more traction, more wear, more retreads!

MONTH in and month out, in all kinds of weather, Julius Porath and Son Company, Detroit, goes about the rugged job of building roads in southeastern Michigan. 105 vehicles—including trucks, cranes, dozers, graders—work 8 to 10 hours a day, 5 to 6 days a week.

Equipment rolls on soft ground, over rock-strewn roads, often over no roads at all. Unnecessary tire failures could tie up production—skyrocket costs. But not for Porath. They use B.F.Goodrich off-the-road tires, report they are "the best tires for this type of work."

One reason is the B.F.Goodrich FLEX-RITE NYLON cord body. It withstands double the impact of ordinary cord materials, resists heat blowouts and flex breaks. The FLEX-RITE NYLON body outwears even the extra-thick tread, can still be retreaded *again and again!*

B.F.Goodrich builds off-the-road tires with extra-thick treads designed to bite into the soil for maximum traction. No matter what kind of construction work you do, there's a B.F.Goodrich tire to make your work go faster, and save you money.

Your B.F.Goodrich dealer has a complete line of tires (left), and he offers expert, on-the-job tire service. See him today or write: *B.F.Goodrich Tire Company, A Division of The B.F.Goodrich Company, Akron 18, Ohio.*

THERE'S A B.F.GOODRICH TIRE FOR EVERY CONSTRUCTION JOB

UNIVERSAL | ROCK LOGGER | SUPER TRACTION | TRACTION EARTH MOVER | ROCK SERVICE

Specify B.F.Goodrich tires when ordering new equipment

B.F.Goodrich
FIRST IN RUBBER

Your B.F.Goodrich dealer is listed under Tires in the Yellow Pages of your phone book

...Announcing new profit s

REPORT on new truck-crane standards:
(one in a series)
LINK-BELT
1 Compare lifting capacities with boom at extended radii . . .
2 not at minimum radius where little work is actually done

LINK-BELT SPEEDER Zephyrcranes feature greater capacities with long booms at extended radii

Truck-crane production is directly related to lifting capacity. But lifting capacity varies with boom length and radius.

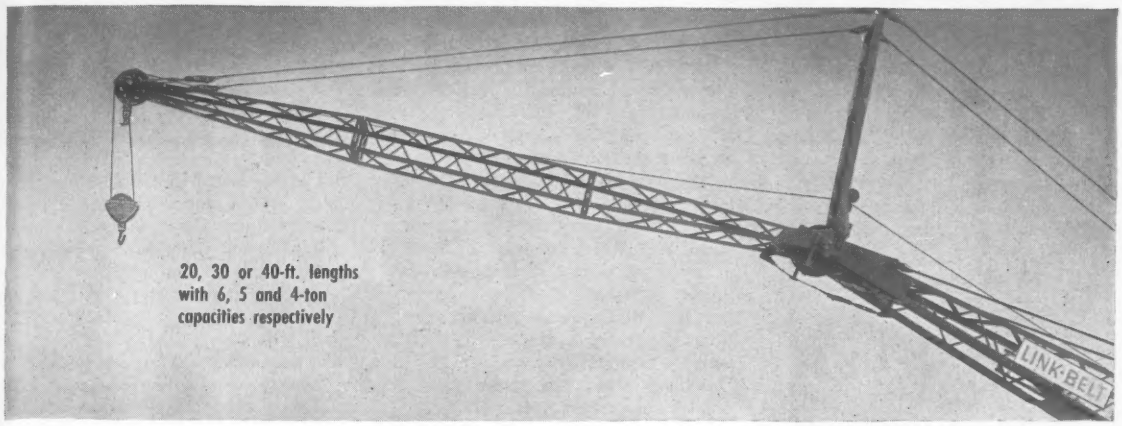
Thus, it's important to measure capacity with the boom out 25 to 40 feet or more where most work is done. And on this basis, you'll be amazed to discover by how big a margin a Link-Belt Speeder outperforms other rigs.

Why? Each Link-Belt Speeder Zephyrcrane (six models, 10 to 35-ton capacities) is years ahead in design. It's a machine with extra "live" weight, a machine with a strategically-located upper for better balance and stability. It has a new high strength alloy boom, new high-capacity jib and scores of features such as the patented high retractable gantry.

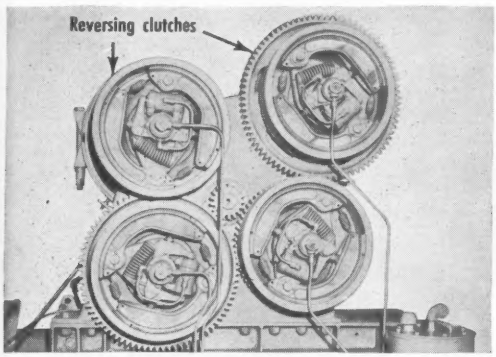
What's more, every Link-Belt Speeder has Speed-o-Matic—the exclusive true power hydraulic control system. Fingertip-operated, Speed-o-Matic provides fast, positive, precise response . . . perfect feel of the load at all times.

But that's only part of the story. For complete details on how a Link-Belt Speeder can help you profit more, set new high standards of truck-crane performance and production—contact your Link-Belt Speeder distributor or write—Link-Belt Speeder Corporation, Cedar Rapids, Iowa.

fit standard for truck-cranes



NEW HIGH CAPACITY JIBS are all-welded, box latticed and built from lightweight but exceptionally strong alloy steels. Available for Link-Belt Speeder HC-88, HC-98 and HC-108 truck-crane models (25, 30 and 35-ton capacities)—the jibs are designed and furnished with jib backstop cables. Turnbuckles are provided for length adjustments to meet a wide variation of jib to boom angles. The jib peak sheave and the jib strut deflector sheaves are mounted on anti-friction bearings. A ten foot jib strut is furnished for all jibs regardless of length.



LOAD LOWERING CLUTCHES

Speed-o-Matic hydraulic-actuated reversing clutches are available for either or both main drums. They provide power load lowering of main hoist line and jib whip line. Also, these clutches are self-compensating for heat and normal lining wear . . . seldom require downtime for hairline adjustment.

POWER-CONTROLLED BOOMHOIST

Another important Link-Belt Speeder feature is Independent Rapid Boomhoist which provides power raising and power-controlled lowering of the boom through large, two shoe boomhoist and boom lowering clutches. Clutches are same size and interchangeable with the main hoist and swing clutches.

NEW 4-AXLE CARRIER

This new, fast, highly stable carrier is available for HC-98 and HC-108 truck-cranes. Prime factor behind its development was meeting state road restrictions . . . easing paperwork and minimizing delays in job-to-job travel. The carrier itself is fabricated from heavy, extra-strength alloy steels. Tandem rear wheels feature full-floating walking beam support which allows wheels to follow uneven terrain . . . maintain full traction at all times . . . increase stability.

14,908

It's time to compare . . . with

LINK-BELT SPEEDER

Builders of a complete line of shovel-cranes . . . with exclusive Speed-o-Matic power hydraulic controls

In hydrants, too, it's important to have

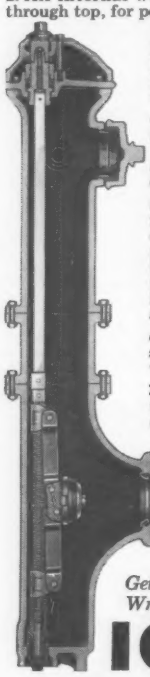
Unobstructed flow

SINCE 1906

Look at a cutaway view before you buy any hydrant! You'll be surprised how few provide an absolutely unobstructed waterway! And *no one* but Iowa offers you *all* this and much more—

1. Provides full and unobstructed waterway for maximum flow from main to nozzle.

2. All internal working parts removable through top, for periodic inspection.



3. Superintendents find Iowa hydrants easy to keep in "tip-top" operating condition—no special tools required.

4. Main valve holds tight in closed position so that —should hydrant be damaged—no loss of water, or flooding, will occur.

5. Two-piece operating nut eliminates binding or distortion of working parts (sometimes caused by expansion and contraction) — makes Iowa hydrants easy to open and close at all times.

6. Complete drainage by sure acting drain, prevents freezing.

7. Fully bronze mounted throughout—meet all requirements of A.W.W.A. —have proved their ruggedness and reliability to waterworks men everywhere.

8. Available with any type of connection.

Get ALL the facts! Write

IOWA

VALVE COMPANY

Oskaloosa, Iowa

A subsidiary of James B. Clow & Sons

Reader Comment

"Cementless" Concrete?

SIR—It is perfectly clear what Mr. Woodruff means in the last line of "Concrete without Cement" (ENR July 4, p. 14). However, "cement" according to Webster's dictionary, is "any substance used for making bodies adhere to each other." Asphaltic concrete does contain cement; i.e., asphalt cement instead of portland cement.

The only way to keep things straight is to add the word "portland" whenever either cement or concrete is referred to. This is just too cumbersome.

If you accept the idea that good communication is achieved by using terms best understood by the greatest number of people, there is much to be said for using "cement" and "asphalt" for "portland cement concrete" and "asphaltic concrete" respectively.

D. W. McKAY
Harbors and Rivers Branch
Dept. of Public Works, Canada
London, Ont.

•

SIR—I would like to modify the letter by J. A. Woodruff (ENR July 4, p. 14) regarding his statement that asphaltic concrete contains no "cement."

I was taught in college that asphaltic concrete contains a coarse aggregate, a sand and filler and a binder. The binder generally has penetration grades of 50-60, 60-70, 70-80, and 85-100, which normally indicates asphaltic cement.

Mr. Woodruff should have qualified his statement by defining his terms.

THOMAS R. DEMERY, JR.
Esso Standard Oil Co.
Linden, N. J.

•

SIR—Let us continue the high-level discussion and deep thinking regarding the correct usage of the terms "cement," "concrete," etc., the latest viewpoint being from J. A. Woodruff (ENR July 4, p. 14).

Mr. Woodruff, of course, is correct in pointing out that there is another kind of concrete, namely asphaltic concrete. However, asphaltic concrete still requires "cement" in its composition. It is known as "asphaltic cement." Therefore, I will stand by my original statement that *cement is an ingredient of concrete* whether it be portland cement to make that type of concrete, or whether it be asphaltic cement to make asphaltic concrete.

My basic objection is using the word "cement," which is an ingredient, to identify the final mixture which is "concrete"—concrete of any type.

Now that the Supreme Court has apparently adopted a new policy that has the effect of broadening the scope of its deliberations and judgments, perhaps we could refer the matter to them and get a final ruling.

A. R. WATERS
President Carter-Waters Corp.
Kansas City, Mo.

Public vs Private Power

SIR: Adm. Ben Moreell questions in his letter (ENR June 27, p. 6) whether Congressman Chet Holifield successfully proved that publicly generated powers sells profitably below the level of private power after considering all factors, including taxes. Admiral Moreell writes: ". . . Mr. Holifield's own rearrangement of figures from the [Hoover] Commission's report . . . clearly excludes the amount of computed taxes . . . No qualified engineer would have difficulty in following in detail the report of the Task Group A . . . and its documentation which was apparently overlooked in the rearrangement of figures included in Mr. Holifield's statement . . ."

Actually, Congressman Holifield pointed out that public power agencies such as TVA sell power at wholesale. Similar private power wholesalers comprise firms such as New England Power and Chicago District Generating. Congressman Holifield submitted data showing that five such companies paid an average 13.5% of their 1953 revenues in taxes. Congressman Holifield concluded: ". . . the consolidated revenues of the federal power program for the 20 years 1933 to 1953 were ample to cover all operating and financial requirements as estimated by the task force plus 16% of such revenues in lieu of taxes. Clearly, there is no showing that the program is subsidized . . ."

Finally, Admiral Moreell notes that his Jones & Laughlin Steel Corp. generated nearly 45% of its power requirements using byproduct gas that would otherwise be wasted. The public power program is precisely analagous. For example, U. S. Army Engineer studies show projects in the Allegheny and Monongahela River basins have long

Engineering News-Record welcomes expression of opinion from its readers. Comment should be as brief as possible and pertinent to subjects of current construction importance. Letters should be addressed: Editor, Engineering News-Record, 330 W. 42nd St., New York 36, N. Y.

Dozing—But Never Dozing Off. Moving earth for new Interchange north of Washington, dozers average 3000-4000 hrs. before overhaul using Cities Service C-300 Motor Oil!

Greene in Name Only. Veteran construction man Ralph Greene is one of Washington's largest earth movers. He refuses to baby his trucks. With Cities Service lubricants they can take it!

At work on new Interchange: Greene & Dyer, Inc., Washington, D. C.

Trucks go 7000 hrs. without overhaul—Shovel chalks up 8500 hrs.

Big earth mover strikes paydirt with Cities Service Products

In the past year, Greene & Dyer, Inc. has moved 1½ million yards of earth in building an Interchange for the new road system north of Washington, D. C.

To do it, President Ralph Greene has kept his trucks, dozers and shovels running constantly under grueling mud and dust conditions. For, as he says: "We're in business to move dirt, not to baby trucks."

Nevertheless, Greene's equipment is rolling up one record after another, using Cities Service C-300 Motor Oil and Cities Service fuels and greases.

Dozers are getting 3000-4000 hours before overhaul. Trucks are rolling up 65,000 miles—or about 7000 hours each. And one shovel has gone 8500 hours with no overhaul yet needed.

Says Greene: "That's proof enough for me that Cities Service products are the best I can use. I'd recommend Cities Service to anyone whose work demands fuels and lubricants that can take it."

CITIES SERVICE

QUALITY PETROLEUM PRODUCTS

for light-to-heavy fastenings to

pre-cast pre-stressed concrete

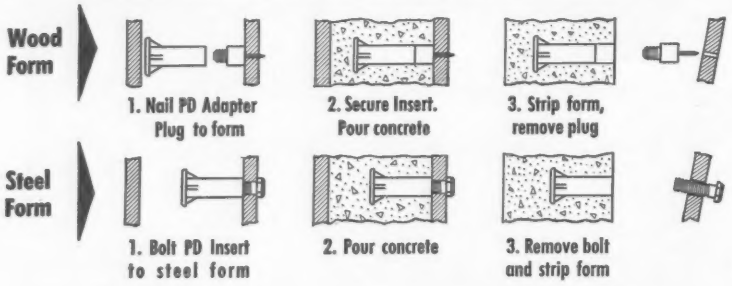
- *priced lowest of all*
- *easiest of all to use*

Save two ways. In both original cost and in labor savings, PD Concrete Inserts are more economical than any other concrete inserts available today.

Spot before casting. Spotted on wood or steel forms before concrete is cast, PD Inserts are left as threaded metal holes embedded in concrete at desired points when forms are stripped.

Next step: Make fastening by threading bolt into non-corrosive, precision die-cast PD Concrete Insert.

How PD Concrete Inserts are used with wood or steel forms


Wood Form
1. Nail PD Adapter Plug to form
2. Secure Insert. Pour concrete
3. Strip form, remove plug
Steel Form
1. Bolt PD Insert to steel form
2. Pour concrete
3. Remove bolt and strip form

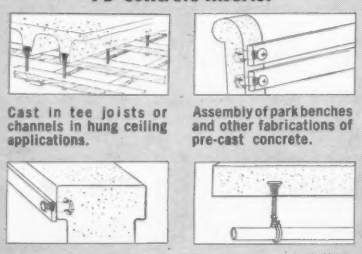
Research tests show high tensile and shear strength of PD Concrete Insert.

Table shows results of recent tests on PD Concrete Inserts conducted by an independent testing laboratory. Concrete in which Inserts were cast had compressive strength of 3500 psi at 28 days. Actual compressive strength was 3760 psi when tests were made.

Holding Power

Cat. No.	Bolt Size	Tension (Pounds)	Shear (Pounds)
PD15	¼-20	2100	2000
PD25	⅜-16	3125	3300
PD35	½-13	4675	5050
PD35 with PD35AP	½-13	5100	5450
PD45	⅝-11	5600	5740
PD55	¾-10	5700	5750

Here are a few of many uses for PD Concrete Inserts.



Cast in tee joists or channels in hung ceiling applications.

Assembly of park benches and other fabrications of pre-cast concrete.

Fasten staging platforms or cat walks in construction of concrete bridges.

Other trade installations are simplified when inserts are cast in slab structures.

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since paid for themselves in terms of flood-control and other benefits. By-product power should therefore be available at very low rates. Nevertheless, existing penstocks (at dams on the Tygart River, Mahoning Creek and Loyalhanna Creek) remain blanked off.

SAMUEL SCHIFFER
Philadelphia, Pa.

Correction

SIR—I hesitate to add to the nice story about my retirement as secretary of the South Carolina State Board of Engineering Examiners and my receiving the South Carolina Engineer of the Year award (ENR July 18, p. 83). However, the following corrections should be made to keep the record straight:

Instead of 1906, it was 1916 when I became city engineer of Columbia, S. C., after serving as superintendent of streets and as assistant city engineer for several years.

Also, I did not practice consulting engineering in New York City, but rather from 1920 to 1928 was district manager, with headquarters in Columbia, for Dow & Smith, a New York consulting firm.

After practicing engineering for several years, I was associated with the South Carolina State Highway Department as assistant construction engineer from January, 1931, to March, 1942. During World War II, I was assistant engineer with the Corps of Engineers, and then district manager of the War Production Board for South Carolina. Since Nov. 1, 1945, I have been full-time executive secretary for the National Council of State Boards of Engineering Examiners, which office I still hold.

Until June 30, 1957, I was also secretary of the South Carolina State Board of Engineering Examiners, which operates joint offices with NCSBEE.

T. KEITH LEGARE
Columbia, S. C.

CALENDAR

International Conference of Building Officials, annual business meeting, St. Francis Hotel, San Francisco, Calif., Sept. 13-15.

Building Research Institutes' Plastics Study Group, Washington University, St. Louis, Mo., Sept. 17-18.

National Conference on Increasing Highway Engineering Productivity, sponsored by Massachusetts Department of Public Works, Massachusetts Institute of Technology, Association of Highway Officials of the North Atlantic States, American Association of State Highway Officials and Bureau of Public Roads, Somerset Hotel, Boston, Mass., Sept. 17-19.

Public Works Congress and Equipment Show. American Public Works Association, Grand Exhibition Hall, Philadelphia, Pa., Sept. 22-25.

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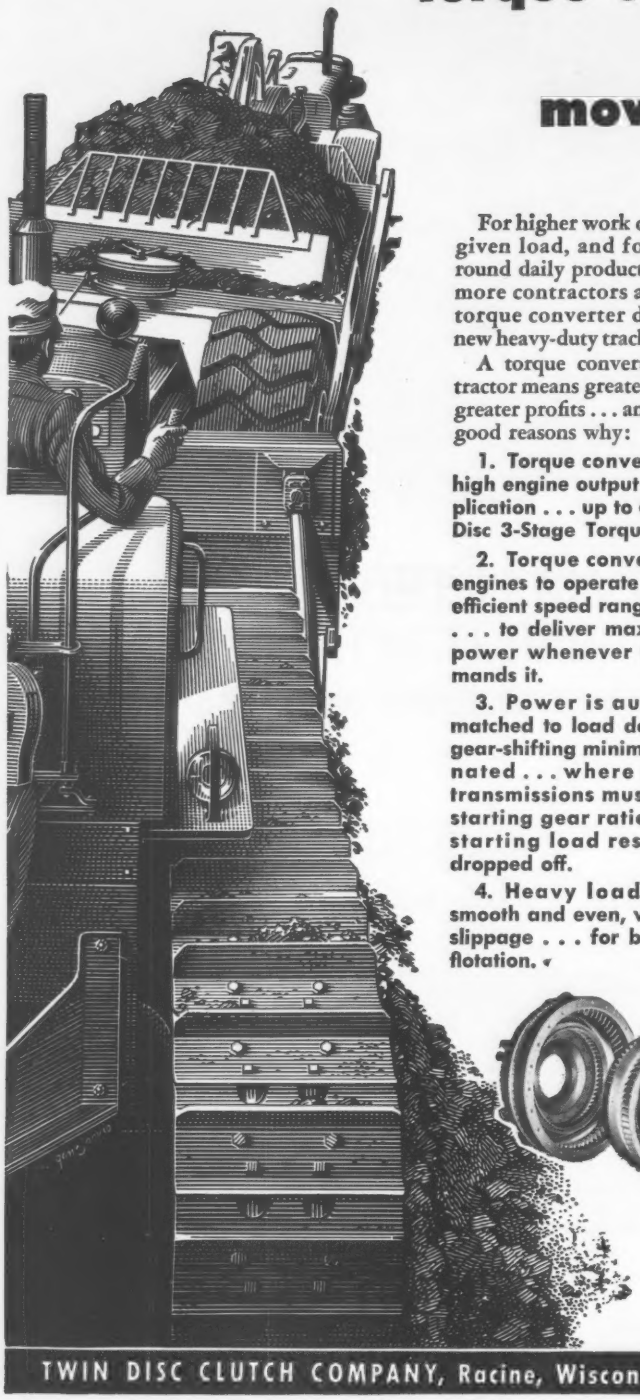

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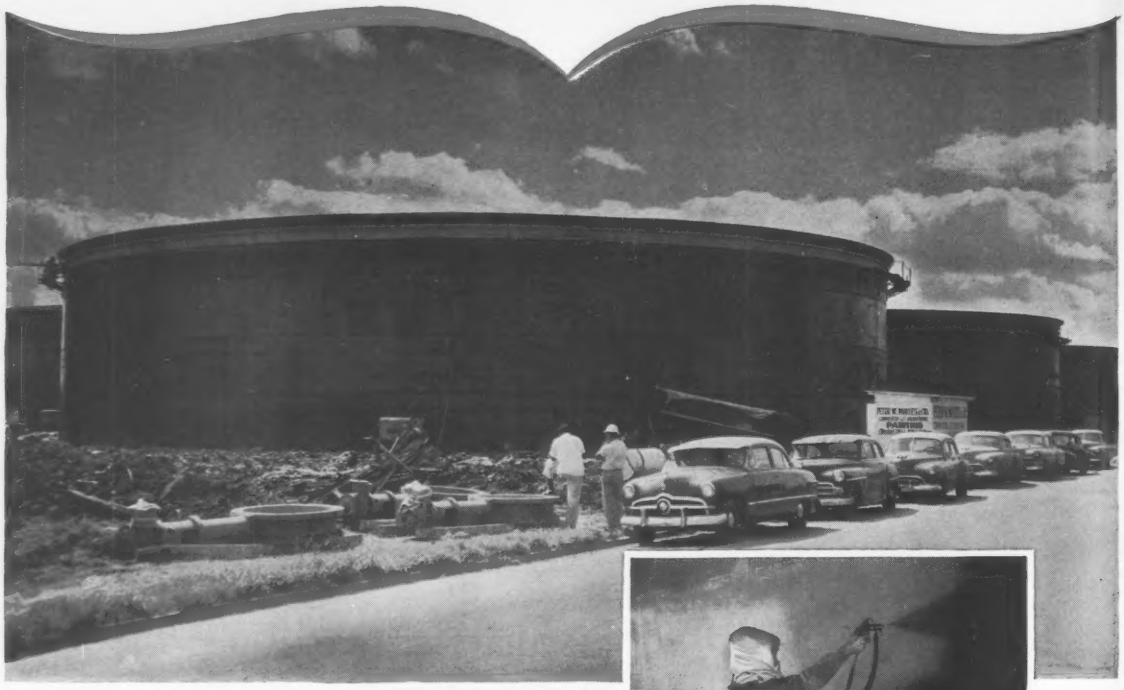

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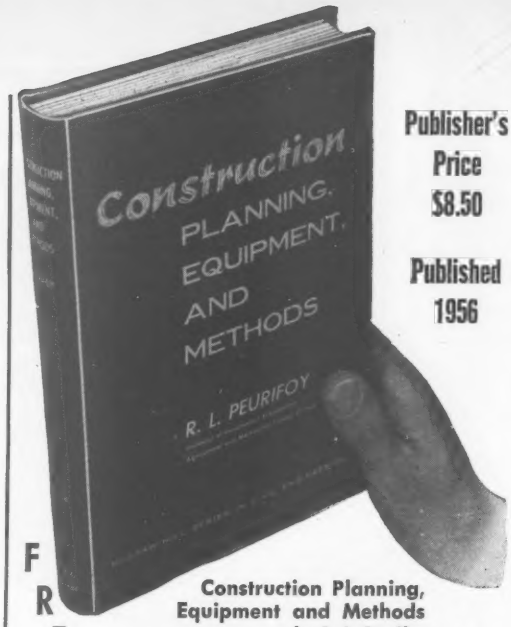

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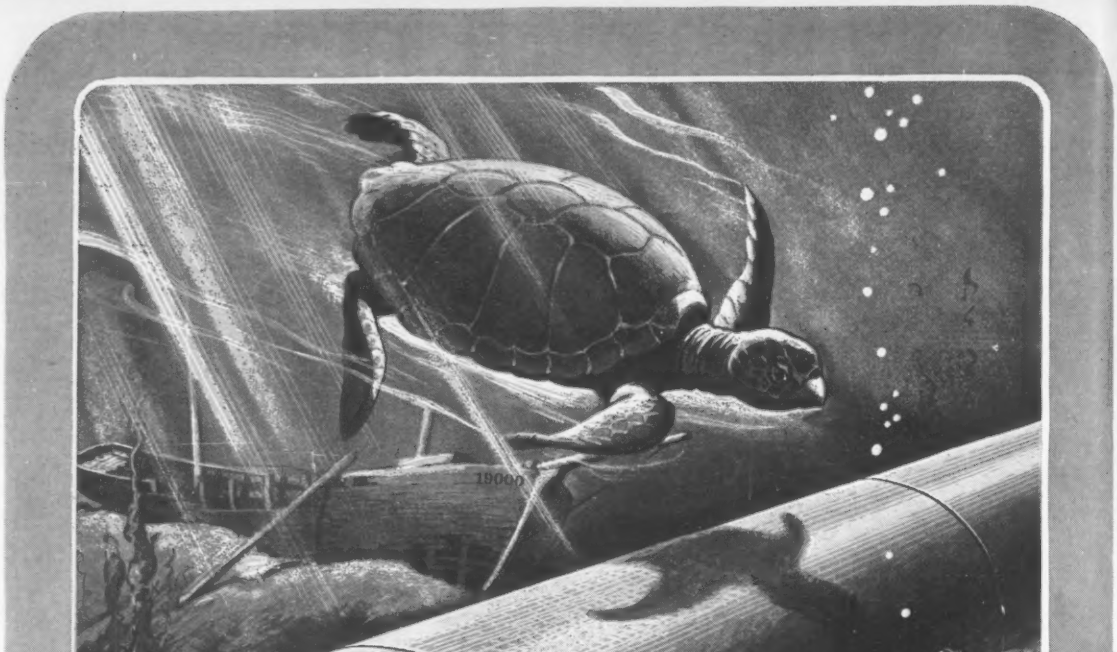

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

HIGH ENGINEERING COSTS?—Phoenix city councilmen have balked at a proposal to award an engineering contract for improvement at Sky Harbor Airport, at 8% of the contract price—in this case, $42,860. The project calls for erecting taxiway signs, paving on a parking lot, installing sidewalks and a transient aircraft apron lighting system. Total cost: $535,750. Proposed one councilman: "I can't conceive of an easier engineering job than preparing plans for a parking lot." He charged that Phoenix engineering firms refuse to compete with each other, pointed out that engineering fees have risen in a short time from 6 to 8%, suggested that West Coast engineers should be invited to prepare plans for city work. But, after being told that expansion of the city's own engineering staff would result in even more costly engineering, councilmen grudgingly OK'd the 8% contract.

MORE FOR THE MONEY—New York State Housing Commissioner Joseph P. McMurray announced plans for a research program aimed at achieving future savings of $1,000 per unit in multiple-dwelling housing. The state legislature has appropriated $30,000 for the study. Architectural colleges are cooperating, as well as an industry panel with representatives of labor, builders, architects, engineers and material suppliers. Commissioner Murray also expects to get some useful ideas from a nationwide competition among architectural students.

UPTURN EXPECTED—The listless contract award volume for industrial building is getting a shot in the arm. During August, proposed industrial building projects totaling more than $300 million fed into the ENR backlog. That was more than double the July total and was three times the size of the low June volume.

ENR Editor Flies to Middle East

More is happening in the Middle East than gets on the front pages. Behind the headlined alarms of political maneuvering and military coups, strenuous efforts are being made to raise living standards and thus remove a principal cause of the unrest. Extensive construction projects are under way, significantly by countries friendly to the United States, and of added interest because of the participation of U. S. engineers and construction people.

To report firsthand on these projects, whose political consequences loom so large on the world scene, ENGINEERING NEWS-RECORD's Chief Editor, Waldo Bowman, begins a trip this week through the northern tier of Middle East countries. His dispatches from such centers as Istanbul, Ankara, Bierut and Baghdad should provide ENR readers with a new insight into the aroused Middle East.

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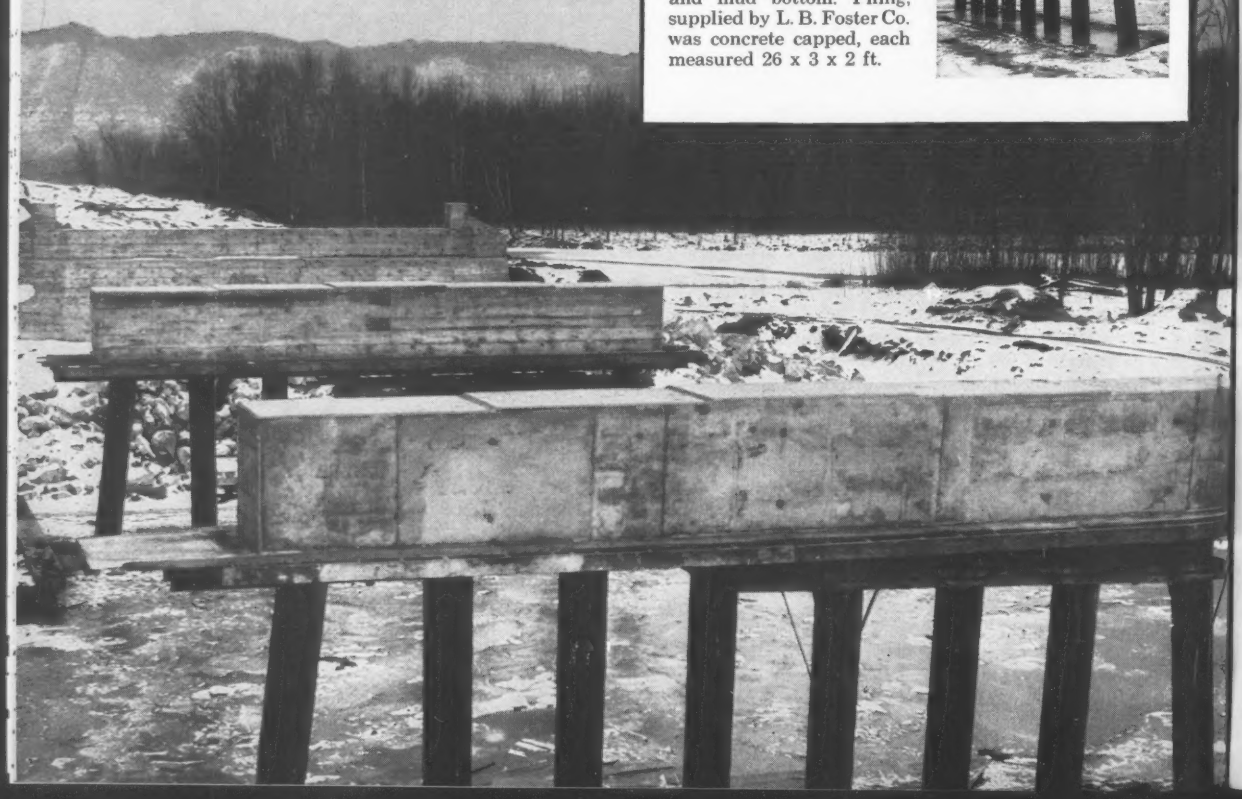

WASHINGTON OBSERVER

- Congress ready to go
- Highway cost estimates rise
- Last rites for lease-purchase
- Washington business outlook

● **Congress is ready to go home. Its record:** A try at budget cutting that in final days began to show results, although money for military and civilian construction was not reduced materially (see page 24.)

Legislation affecting construction was sparse this session, which means that Congress will have a busy time in the election year. The major act of this session was a new housing law aimed at remedying the declining construction rate, but its effects are not expected to show up much in the quarter ahead.

School construction legislation will be a major issue next year. The Senate will try to write a bill that a majority can approve, avoiding the pitfalls that stopped the bill in the House. Allocations based on need will be substituted for allocations based on school population in the states, not entirely, but as the most heavily weighted factor. With civil rights somewhat out of the way, Congress leaders believe they can overcome the integration problem next year.

New housing legislation will be considered—and more drastic measures will be offered up should the construction slump continue. Already Sen. John Sparkman, D. Ala., is sponsoring a bill to set up a home guarantee corporation providing insurance for conventional mortgages. Sparkman would insure the top 20% of conventional loans made by federally insured savings and loan associations and their participating lenders. The guarantee would be 90%. Lenders feel such a gaurantee would permit reduction of downpayments from today's standard 30% to 10%.

● **Some new highway legislation will come up.** When the new cost estimates on the interstate system hit Congress on Jan. 12, Congress will be forced to face the problem of where to get the extra revenue to pay for the present program. Estimates are expected to go up from $27 billion to $35 or $40 billion.

The estimates will dampen enthusiasm to add mileage to the 41 thousand miles already authorized. Legislation suggesting up to 7,000 miles of additional interstate highways has been shelved this year.

● **Direct federal financing of government buildings** can be predicted for next year. Lease-purchase will be limited to a few buildings in the District of Columbia. Any other building will be financed in the old-fashioned way—from Congressional appropriations. Rep. Robert Jones of Alabama is pushing a $1.5-billion authorization.

● **Washington expects the economy to level for the rest of the year.** Most people you check in the government are confident—that there will not be a spiraling inflation, that the upward price trend rate will diminish. And they are confident that the stabilizing, or leveling will be healthy, instead of foretelling a recession.

Housing will not benefit in the short-run, but an easing of prices and credit in the last quarter would give the industry a better post position for next year.

Industrial expansion will slow, these people think, but will be offset by highway construction, waterways, and other public construction. Commercial building will stay relatively steady.

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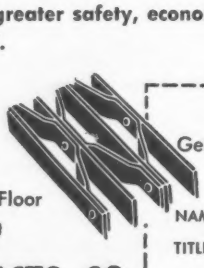

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Homebuilders' Dream Is Now a Nightmare

When the government "liberalized" housing credit some three weeks ago (ENR Aug. 8, p. 108), many homebuilders saw visions of sugar plums dance in their heads. Last week, a cold-eyed Santa Claus seemed reluctant to come down the chimney and the sugar plums had a sour taste.

Congress, under pressure from homebuilders, pushed the Administration into lower downpayments on FHA loans, to attract home buyers, and upped the interest rate, to attract lenders. But, and here's the rub, it limited "discounts," the device by which banks get a premium for lending money in areas where credit is traditionally tight.

To builders who have had to pay them in the past, discounts are an old and sad story. To others, they may be gaining a new significance, one that could, according to one banker, put FHA mortgages in the same grave with VA loans. Here's what a discount is—and what it means for homebuilding not only this year but in 1958 as well:

John Brown plans the purchase of a $15,000 house. Present regulations call for a downpayment of 3% on the first $10,000 of value, plus 15% of the next $6,000 plus 30% of the excess with a $20,000 mortgage maximum.

In the case of John Brown he will need $1,050 as a cash payment and a mortgage of $13,950. But the discount asked by the bank is 2% of the face of the mortgage, or $279.

This amount is usually paid by the seller of the property with the buyer getting his required mortgage of $13,950. Two percent of that amount, however, has been supplied by the seller but the bank will be repaid the full amount by the buyer at the 5¼% interest rate. Basically, the bank supplied a smaller amount than it will receive in payments over the life of the mortgage and at the same time earns 5¼% on more money than it actually loaned from its own coffers.

• **Regional variations** — Discount amounts vary by region, however, with the largest discounts being required by institutions in the Northwest, Far West, the Mountain States, the South and the Southeast.

The Northeastern and Middle Atlantic states generally have much lower discount rates. And in wide areas around New York City and Washington (particularly New York), discounts on FHA mortgages have been and still are nonexistent.

Historically, the East has been a reservoir of capital funds. The savings of the heavily populated regions have accumulated over generations and it is from savings that borrowed money originates. The greater the amount of funds saved by individuals and organizations, the greater is the amount available for lending.

For years, New York and the cities along the Eastern Seaboard have provided the funds for the other sections of the country. And since any institution in those areas must pay interest on the money it borrows from the East, it must in turn obtain a higher interest rate from those to whom it loans its funds.

• **The rub**—It is this regional difference that is now creating the rub. In San Francisco, for example, institutions have made FHA loans on a basis of a 4% to 5% discount. But under the new regulations, lenders are only allowed to charge a 2% discount.

The discount limitation will cut the yield on the money loaned and, because many companies and individuals are willing to pay 6%, lending institutions are not anxious to make FHA loans that require more servicing and are less profitable.

Combine this with the interest rates on some government and corporate bonds ranging in today's market from 4% to more than 5%, and FHA mortgages don't stand much chance in the cold world of finance.

• **Second best**—One California financial executive said, "If you have more money than you can use, you invest it in the second best—FHA loans." But under present conditions it may be some time before FHA mortgages will rate as even second best.

The safety factor provided by government insurance is taking a back seat. During years of increasing prosperity, the foreclosure rate on all types of mortgages has diminished to only a fraction of 1% on a national average.

One Michigan banker felt that risk is now negligible; therefore, institutions would prefer to make conventional mortgages at a higher interest rate than

. . . Homebuilders' dream is now a nightmare

they would get on an FHA loan.

• **Forced to the bench**—There is also a feeling among both builders and financial executives that the new rulings have sent potential buyers to the sidelines.

Regulations have been changed once and builders report that the public feels another revision may make its appearance. They are waiting for something better to come along. With the buyer on the sidelines, builders may face a quiet fall sales volume.

But even should another revision be made, one that would perhaps favor the buyer, the lenders will probably hew to a line they apparently drew long before the latest set of field rules were made.

Some lenders, both in the East and in the Midwest expressed the belief that the government had embarked on a "foolish, perhaps disastrous course." The lower downpayment was the issue in this case.

One said if the present trend continues "we'll be giving homes away, complete with a car in the garage. Homebuilding is fast reaching the point where no money is needed in order to buy."

• **Unwise purchasing**—A Boston area banker said it is not taking on any FHA loans at all. He added, "I do not think that it's wise to lead the average home buyer into something that he might regret later on."

He criticized the new legislation and rulings as inflationary and said that lower downpayments and easier credit served to encourage families to buy property they might be unable to carry in the future.

• **Shifting tide**—The attitude in the Boston area is a sharp reversal from earlier years, when the refrain of most bankers and all builders was that a home purchase was the best investment a family could make.

The tight money situation in that area is also a reversal. In the center of thrift-minded New England, the Boston area has been a source of capital funds for all sections of the country.

Now it finds itself in a period of comparative scarcity. The bankers note that the traditional savings patterns are changing. They report that "people no longer save for a rainy day. If they do save, it is for a short period and only the time necessary to acquire a specific sum of money to buy a specific thing they want."

• **The builders**—In general, the builders appeared unconcerned or at best were doubtful about the situation.

In Los Angeles, builder organization spokesmen said members think it's too soon to feel either dejected or happy. Some believe the FHA rules have not been fully clarified and are awaiting further developments.

In Dallas, a construction company executive said that commitments on houses in its projects have been made at the rates existing under the old regulations. "But, we are unable to place any loans at the new rate," he added.

In Florida's Tampa area, the situation was described as "confused" by the vice president of Claire-Mel Builders Inc. He said his firm has not suffered in the past, however, "because of good contracts."

They're Saying This About the Discount Rules

Atlanta: One of Georgia's biggest lenders says, "The 2% discount is completely unrealistic. This whole situation is a purely political maneuver."

Boston: A banker says, "There are too many discrepancies in the rate structure to please the banks."

Chicago: Some lending institutions contend that, in the long run, the homebuyer won't benefit very much (from the changed regulations). It reduces the incentive for builders to cut costs and increases the cost of home ownership.

Dallas: "The new regulation has hurt the people it was designed to help—the builders. And if it isn't adjusted soon it will put many of them out of business," was the warning issued by C. A. Locke, partner, Edwards-Northcutt-Locke, Inc., mortgage bankers.

Denver: "We're doing no FHA lending at this time and we see no change in the immediate future," was the brief retort of a spokesman for Prudential Insurance Co., the area's largest FHA lender in the past.

Detroit: A spokesman for Detroit's Bank of the Commonwealth claimed the new ruling was reflective of a "very foolish, perhaps, trend. If this keeps up, we'll be giving homes away, complete with garage and car. The home buying business is fast getting to the point where no money is needed to buy."

Jacksonville: "We doubt if we will want to increase our load of FHA mortgages very much," was the belief of one of the officers at First Federal Savings and Loan.

Los Angeles: "The present FHA terms do not permit a proper balancing of income necessary to maintain a flow of investment," according to Edward L. Johnson, executive vice president of Standard Federal Savings and Loan Association.

New York: One of the nation's largest banks in the home mortgage field told ENR, "We intend to follow the new FHA rules right across the board. We were rapidly approaching a situation in which discounts would have been necessary, but the new rules have averted this."

San Francisco: "It's a critical situation. FHA money was available from eastern sources until the new regulations went into effect," was the reply from John Peterson of Stoneson Development Corp.

Seattle: Sheffield Phelps, of Securities Mortgage Co., president of the Seattle Mortgage Bankers Association, says the new regulations not only are not attracting new money but that they temporarily will scare new money away until the old discounts are used up. He believes the new discounts will be helpful in the long run, however.

Tampa: Lenders have pulled in their horns completely. Unless the government acts on interest rates, the building industry will be paralyzed," was the retort from A. F. Johns, president of the Florida Association of Home Builders.

Washington: Nobody has said anything about withdrawing from FHA business because of the new discount controls. Everybody is waiting for clarification of the rules—from FHA and from prime lenders in New York.

Pikes Okay in Federal Net

No cost to U. S. for 2,100 miles, but toll charges to continue. Move seen preliminary to reimbursement

Taking a step that may have major implications as to policy and costs of the interstate highway system, the Bureau of Public Roads last week announced that it had approved 2,100 miles of toll facilities for inclusion in the proposed 41,000 mile interstate network.

BPR's action has no immediate effect on the highway program. The tollroads were simply okayed as part of the interstate system, at no cost to the federal government. The assumption is that, since the U.S. paid no part of the roads' construction costs, they may continue to charge tolls until their bondholders are paid off.

For the present, therefore, this will make no change in the 1954 cost estimate (on which the 1956 law was written) of the need for a $27.8 billion federal contribution to the cost of the interstate system. However, new estimates now being prepared by BPR for submission to Congress by Jan. 12 of next year, may include costs of purchasing the tollroads, as well as added costs of building the rest of the system that have appeared since the earlier estimate was made.

Real significance of BPR's action, however, was the implication that, in order to make national policy consistent, there will be real pressure to make the toll sections free roads. The way to do that—and such action would add to the happiness of quite a few turnpike groups—would be for the federal government to pay up the original cost of the toll roads (or at least the amount of outstanding debts), thus removing the need for tolls.

Strengthening the belief that some such action will be forthcoming is the fact that on Jan. 12, Congress will also receive from BPR a report on the current appraised value of the toll sections included in the interstate system. On the basis of this report, Congressmen will decide whether they should make these sections toll-free, how much the U.S. would offer for each turnpike section, and how repayment should be made.

• **Not all clear**—Despite the obvious joy of many of the turnpike groups—particularly those that haven't come up to expectations in earnings (see p. 76)—the question of reimbursement isn't all black and white.

For one thing, some states—like Maine—are quite happy with their turnpikes, and have no intention of making the roads free and thus losing a revenue source. Maine's law, for one, has no requirement that the turnpike ever be made a free road, and local newspapers suggest that if the road is kept as a pay facility, the revenue would be welcome to the state treasury.

For another, the bond indentures on many of the turnpikes are so written that the state couldn't accept any plan that isn't also approved by the bondholders and their bankers.

Then, too, New Jersey and Florida have requested inclusion of only tiny parts of their turnpike systems—the 8 miles of the New Jersey Turnpike between Newark Airport and the Holland Tunnel, and the 41 miles of the Florida Sunshine Parkway between Hollywood and Ft. Pierce.

And two of the pikes in greatest need of financial help—West Virginia's hard-pressed turnpike (see also p. 76 this issue) and Pennsylvania's northeast extension—are not along interstate system location lines, and won't be included.

Tunnel Explosion Laid to Gas

Investigators have ascertained that it was gas, not dynamite, that exploded and killed three men in a rock tunnel at Oswego, N. Y., Aug. 18 (ENR Aug. 22, p. 24).

About six weeks before the explosion, general contractor Herbert F. Darling of Williamsville, N. Y., had completed driving an 8 ft dia tunnel in rock from a shaft at shore to a riser beneath Lake Ontário as part of a new water supply for the city of Oswego. A rock plug at the top of the riser 16 ft thick and 14 ft in dia was to be blasted free to permit an intake structure that had been fabricated on shore to be positioned over the riser. Lake Ontario is some 60 ft deep over the riser.

The contractor placed and fused a dynamite charge in the plug during tunnel cleanup operations when ventilation lines, trackage and all other equipment were removed. The charge, about 1,250 lb of explosive through the tunnel, was fused to shore with Primacord.

Darling's original shooting plan called for the tunnel to be flooded prior to the blast by pumping through two 6 in. lines, with the air bubbles at the riser to escape through a 2 in. pipe through the plug. Flooding was deemed necessary to prevent damage to the tunnel. Blasting engineers of the Du Pont company advised employing booster charges—half sticks of dynamite placed every 1,000 ft along the Primacord—to help insure detonation through to the plug because the fuse would be under water for several days.

Cognizant of a history of methane gas in several earlier tunnels driven in the area, the contractor used testing equipment for carbon monoxide and explosive gases throughout the life of the job without ever detecting any. During the morning of the fateful day, the contractor's general superintendent, L. P. Heiston, went into the tunnel to test the air and found only the possibility of oxygen-deficient air at the offshore end of the tunnel.

When Mr. Heiston, tunnel foreman Philip Aylor and an electrician went back into the tunnel that afternoon to place the boosters and open the water valve, they were quite confident that the air was safe. None carried permissible (sparkproof) equipment and one of the men who did carry a gas mask was to go no further than 4,500 ft out. A fourth man in the tunnel, Horace Nunn of Du Pont, was permitted to go out to the 2,500 ft mark without a mask.

Mr. Nunn, who was working at about 2,500 ft, believes he saw miners' lights coming toward him at the time of the explosion. The explosion threw Mr. Nunn 30 ft or so, inflicting abrasions and internal injuries that are still under treatment.

Rescue teams found the bodies at about 5,600 ft only last Thursday, after a 12 in. air line had been re-installed in the tunnel. Subsequently, investigators found all the half sticks of dynamite the men had been carrying unexploded.

Primacord and the plug charge were also in their original condition, leading to the conclusion that gas, most probably methane, had exploded.

The contractor now has an air line to the plug. He plans first to open the water valve, then lay Primacord and booster charges and fight water as he backs through the tunnel, always with an air line present.

Therein lies the lesson of this tragedy, in the view of contractor Herbert F. Darling. No matter how carefully you test for bad air, you can never really be sure, so if at all possible keep ventilation in the tunnel while anyone has to work on it.

Observers do not blame the procedure of the late Woody Heiston, considered one of the most capable and safety-minded of tunnelers. His and his co-workers' untimely deaths contribute still additional knowledge of safer tunnel driving methods.

Public Works Appropriations *(Fiscal 1958)*

CONSTRUCTION STARTS

Project, Location	Estimated Total Cost (Millions)	Fy 1958 Money (Millions)
CORPS OF ENGINEERS		
John Day, Wash.-Ore.	350.0	1.0
Allegheny River Res., Pa.	101.0	1.0
New Richmond Lock and Dam, Ky.	72.8	0.8
Carlyle Res., Ill.	34.2	0.3
Hopkinton Everett Res., N. H.	34.1	0.1
Dardanelle Lock and Dam, Ark.	26.9	1.4
Arkansas River Channel Rectification, Ark.-Okla.	25.3	1.5
Cooper Res. and Channel, Tex.	12.5	1.4
North Hartland Res., Vt.	11.8	1.0
Galveston Seawall, Tex.	9.0	1.0
Albuquerque Levees, N. M.	7.8	0.8
Bull Shoals Res., Ark.	5.9	0.1
Carbon Canyon Dam and Channel, Calif.	5.7	0.8
Saginaw River Channel, Mich.	5.7	0.5
Norfolk Harbor Channel, Va.	5.2	1.8
Whitelaw Ranch Res., Ariz.	4.6	0.3
San Lorenzo Creek, Calif.	4.3	1.0
Savannah River Channel, Ga.	4.2	0.8
Dam 8, Monongahela River, Pa.	3.7	1.0
Ottawa, Kan.	3.4	0.5
Allentown, Pa.	2.2	0.4
Lower Heart River, N. Dak.	1.8	0.2
Multnomah Drainage Dist. No. 1, Ore.	1.8	0.5
Dry Pass, Alaska	1.7	0.9
Salt Lake City, Utah	1.5	0.3
Middle Creek, Calif.	1.3	0.3
Roseville, Ohio	1.1	0.5
BUREAU OF RECLAMATION		
Crooked River, Ore.	6.3	0.9
Little Wood River, Ida.	2.2	0.4
Wapanitia	0.5	0.4

PROJECTS UNDER WAY

(Fiscal 1958 Appropriation More than $5.0 Million)

	Amount Appropriated to Date (Millions)	Fy 1958 (Millions)
CORPS OF ENGINEERS		
Fort Gaines Lock & Dam, Ala.	$5.4	6.6
Table Rock Res., Ark.	33.4	17.0
Russian River Res., Calif.	3.2	5.0
Los Angeles County Drainage, Calif.	162.3	18.1
Success Res., Calif.	3.0	5.0
Central & Southern Florida Flood Control	38.1	5.5
Illinois Waterway, Calumet-Sag.	13.8	6.0
Markland Lock & Dam, Ind.	6.7	9.5
Missouri River Navigation (Omaha to Sioux City)	47.1	6.6
Tuttle Creek Res., Kan.	21.0	10.0
Barkley Dam, Ky.	1.4	5.0
Greenup Lock & Dam, Ky.	16.3	13.5
Great Lakes Connecting Channel Dredging	5.1	13.0
Missouri River Navigation (Kansas City to Mouth)	103.0	5.0
Delaware River Deepening (Phila. to Trenton)	6.1	9.0
New York and New Jersey Channels	6.1	5.2
Eufaula Res., Okla.	2.7	5.2
Oologah Res., Okla.	5.4	6.8
Cougar Res., Ore.	2.4	6.6
The Dalles Dam, Ore.-Wash.	203.2	19.0
Oahe Res., S. Dak.	90.5	27.0
Eagle Gorge Res., Wash.	8.0	8.0
Ice Harbor Lock & Dam	10.1	18.5
Hildebrand Lock & Dam, W. Va.	3.9	5.3
Sutton Res.	8.3	8.0
BUREAU OF RECLAMATION		
Central Valley Project (Less Trinity Div.), Calif.	465.6	8.0
Trinity River, Calif.	11.6	17.1
Santa Maria Project, Calif.	5.8	5.6
Ventura River Project, Calif.	6.9	12.0
Rogue River Project, Ore.	2.2	6.0
Weber Basin Project, Utah	31.3	6.5
Columbia Basin Project, Wash.	510.9	13.9
Glendo Res., Wyo.	21.8	10.0
Missouri River Basin Transmission Div.	101.4	8.0

Civil Works

Construction has taken part of the loss resulting from the reduction in spending plans by Congress and the Administration this year.

Construction, however, has suffered less than some other activities of the federal government. Only in the military area has construction cutting been severe.

Elsewhere—in the important construction fields of water resources, highways, hospital, airports and the like—only minor token cuts have been made in money bills for the current fiscal year. And it remains to be seen whether even these small cuts won't be wiped out by supplemental appropriations after Congress comes back to Washington next January.

Two money bills that Congress passed last week show how construction is affected by the switch in government spending policy from liberality in January to parsimony in June and July.

• **Military works cut hard**—Military construction took a real drubbing in that period. In his January budget message, the President told Congress he planned to ask $2.2 billion for new construction projects of the Army, Navy and Air Force. By the time the request finally went to the House Appropriations Committee at the end of June, however, the Defense Dept. budget had undergone two drastic cuts that reduced construction plans by more than $450 million. The administration actually asked for $1.56 billion in appropriated funds to build new works at military installations.

But Congress by that time had caught the economy fever and was out to do the White House one better. The money powers on the Hill fine-combed the taut military construction budget for an additional savings of more than $100 million. In the end, Congress last week approved military construction funds of $1.47 billion.

This appropriation for construction at military installations is $735 million less than President Eisenhower forecast in January. It represents a deep slash—more than 30%—in what the Defense Dept. then considered the irreducible minimum for national security.

For military construction, this means a cutdown of more than $200 million in budgeted spending for the current fiscal year. The savings are to be made through revision of plans for some jobs that are temporarily deferred and by a stretchout of construction on others that are under way.

As always, authorizations for new military construction went through Congress this year almost simultane-

Are Spared Deep Cuts—Military Hit

ously with the full appropriations to pay for 100% completion of the authorized work.

• **Civil works, not so hard**—In contrast to military construction, the economy drive had little effect on public works—except that few new starts were approved for the Bureau of Reclamation.

For civil works—the federal water resources program—the Administration requested $876.5 million and was given $858.0 million, $1.3 million more than last year. Of the total, $675.4 million goes for resources construction, the remainder for operating and planning expenses of four federal agencies. Construction money, largely to pay for contracts already let and under way, is divided up among the Corps of Engineers, $510.1 million; Bureau of Reclamation, $141.8 million (including upper Colorado basin fund); Bonneville Power Administration, $22.0 million; and Southwestern Power Administration, $1.5 million. Last year the Corps received $520 million, Reclamation, $144 million.

Congress this year adopted a "no new starts for major projects" policy that resulted in the rather bare accompanying list of project starts. The only three that fall into the major project category are John Day Dam on the Columbia River, Allegheny River Reservoir and New Richmond Lock and Dam on the Ohio River. However, the amounts appropriated, $1.0 million, $1.0 million and $0.8 million, respectively, do not permit much more than just a start.

In the case of $350 million John Day Dam, this year's appropriation (to be used for access roads and utility relocation) does not preclude eventual construction under a private-federal partnership arrangement as has been proposed. No action has been taken on a bill introduced before Congress in 1956 to permit such construction.

Bureau of Reclamation is especially lacking in larger new starts. It had hoped for first monies for the $25.7 million Ainsworth project and the $32 million Farwell project, both in Nebraska, but these were knocked out, leaving Reclamation with only three small starts.

Projects under way fared rather well in Congress, as indicated in the table. Biggest amount was the $27.4 million approved for Oahe Dam on the Missouri River. Ice Harbor Lock and Dam on the Snake River received its first big chunk of construction money, $18.5 million.

• **Deeper Deleware channel**—Congress reversed its economy pose in appropriating $9 million to deepen the Delaware River channel between Philadelphia and Trenton to 40 ft navigable depth instead of the 35 ft the Administration argued for. The Administration point was that the U. S. Steel Corp., which would be the prime present beneficiary of the extra 5 ft of depth, should bear part of the extra cost.

One unusual item in the appropriation bill is $500,000 in planning funds to the Corps of Engineers for the as yet unauthorized—and controversial—Bruces Eddy project on the Clearwater River, tributary to the Snake in Idaho. Bruces Eddy would be a part of the main Columbia Basin flood control plan.

So far, no Administration cut has been reported for public works spending in the current year. The Corps of Engineers and the Reclamation Bureau are budgeted to spend nearly $900 million in the twelve months. There is always the possibility that the President might order a slowdown in the spending rate.

• **Cuts come hard**—Money requests for public works projects are practically impregnable, once the President has presented them in a budget message to Congress. Even in an economy year, neither the Administration nor the Congress likes to do any cutting. The only changes of significance, as indicated by Congressional action this year, are likely to be small increases and additions to the project list.

Housing legislation was a case in point. The Administration changed its mind on urban renewal and college housing, for example, and asked for reductions in its original requests. Congress refused to make the cuts and voted as much as originally budgeted—or more.

Letters from home swayed the Congressmen on public works decisions. There was a flood of mail demanding a general cut in expenditures, with foreign aid as a target for many writers. But when any construction program or project was threatened, the cities, towns and counties swamped their senators and congressmen with urgent pleas to fight for the appropriation.

No such danger was involved in deferment of the omnibus authorization bill for rivers and harbors, flood control, and reclamation projects. There is an $8 billion backlog of authorized projects on hand now awaiting money to start construction. There was small danger of a grass-roots storm, therefore, when House lenders decided to defer passage of the pending $1.4-billion authorization measure until the next session.

Military Works

Project	Fiscal '58 Appropriation
ARMY ($5 Million or More)	
White Sands Proving Ground, N. M.	$16,530,000
Fort Lee, Va.	6,200,000
Fort George Meade, Md.	8,000,000
Fort Campbell, Ky.	5,100,000
Fort Rucker, Ala.	5,800,000
Fort Bliss, Tex.	7,700,000
Fort Polk, La.	7,700,000
Fort Ord, Calif.	5,400,000
Classified, various locations	159,400,000
Alaska	16,000,000
France	20,800,000
Korea	9,000,000
Okinawa	8,000,000
National Guard	20,000,000
Army Reserve	35,000,000
NAVY ($5 Million or More)	
Shipyard, Bremerton, Wash.	$25,400,000
Fleet Headquarters, Norfolk, Va.	11,800,000
Fleet Headquarters, Oahu, T. H.	10,500,000
Auxiliary Air Station, Meridian, Miss.	13,400,000
Air Station, Cecil Field, Fla.	5,200,000
Auxiliary Air Station, Fallon, Nev.	9,200,000
Seaplane Facility, Hertford, N. C.	8,500,000
Air Station, Lemoore, Calif.	29,100,000
Air Station, North Island, Calif.	9,400,000
Air Station, Oceana, Va.	7,500,000
Auxiliary Field, San Clemente, Calif.	9,400,000
Air Station, Whidbey Island, Wash.	9,400,000
Marine Auxiliary Air Station, Beaufort, S. C.	5,600,000
Marine Air Station, Cherry Point, N. C.	6,500,000
Marine Air Station, El Toro, Calif.	7,700,000
Air Station, Guantanimo Bay, Cuba	6,400,000
Air Station, Roosevelt Roads, Puerto Rico	15,500,000
Marine Supply Center, Barstow, Calif.	7,600,000
Classified Ordnance Facility (AC-1)	5,000,000
Training Center, Great Lakes, Ill.	5,600,000
Radio Station, Washington County, Me.	16,200,000
AIR FORCE ($10 Million or More)	
Monot AFB, Monot, N. D.	$10,900,000
Otis AFB, Falmouth, Mass.	11,000,000
Richard Bong AFB, Kansasville, Wis.	23,800,000
Various Locations, Air Defense Command	14,700,000
Various Locations, Ground to Air Missile (BOMARC)	43,000,000
Air Force Academy, Colorado Springs, Colo.	17,300,000
Griffiss AFB, Rome, N. Y.	13,400,000
Wright-Patterson AFB, Dayton, O.	11,000,000
Holloman AFB, Alamogordo, N. M.	12,500,000
Blytheville AFB, Blytheville, Ark.	11,800,000
Bunker Hill AFB, Peru, Ind.	10,700,000
Dow AFB, Bangor, Me.	17,600,000
Greenville AFB, Greenville, Miss.	20,800,000
Larson AFB, Moses Lake, Wash.	13,400,000
Lockbourne AFB, Columbus, O.	11,400,000
Offutt AFB, Omaha, Neb.	10,700,000
Walker AFB, Roswell, N. M.	13,900,000
Seymour Johnson AFB, Goldsboro, N. C.	10,700,000
Aircraft Control and Warning System	81,200,000
Various U. S. Locations	107,000,000
Reserve Forces Construction	20,900,000
Alaskan Air Command	22,900,000
Far East Air Force	11,000,000
Military Air Transport Command	17,000,000
Strategic Air Command, Canada	67,600,000
Strategic Air Command, Greenland	15,800,000
Strategic Air Command, Spain	11,200,000
Air Forces Europe, Middle East	17,800,000
Aircraft Control and Warning, Greenland	20,000,000

Putting the Water Problem to Business

A fast-moving one-day conference in Peoria, Ill., last week, left one fact crystal clear: "The most encouraging aspect of local water supply in Illinois is the widespread concern about it." And Assistant Secretary of Interior Fred G. Aandahl related local concern to the national picture for the conferees.

The attitude of concern was reflected in the formal talks, the question-and-answer periods, and the informal conferences among water supply authorities, civic officials and business leaders. Major problems posed: finding adequate water supplies, sufficient funds to develop them, and personnel to plan and operate the developed systems.

Sponsored by the Illinois State Chamber of Commerce in cooperation with the Peoria Association of Commerce, the conference drew an attendance of about 325—mostly from Illinois, some from adjoining states.

In sponsoring the conference, the Illinois State Chamber of Commerce followed the recommendations of its Water Resources Committee, formed last year and composed of 30 leading Illinois businessmen interested in state and local water problems. The committee considers the overall question of water supply to be one of the most pressing problems facing Illinois industry today. Its chairman is C. S. Boruff, technical director, Hiram Walker & Sons Inc., Peoria.

• **Happy with water laws**—Little or no fault can be found with Illinois water laws or the state agencies dealing with water; that was the unofficial consensus of the conference. The state's public water supply law, enacted in 1951, places the responsibility for the safety and adequacy of public water supplies squarely upon the owners and official custodians of the systems.

Moreover, the state is a recognized leader in water supply with its strong water pollution control agency, its department of health, and its progressive water survey and groundwater geological survey agencies.

These agencies recognize that "water is the life-blood of any community." But the difficulty lies in convincing individual communities that theirs is the responsibility of appraising their water needs, both for the immediate and long range future—and initiating adequate water supply programs before it is too late, conferees were told.

• **Lucky with water sources**—Speaking at the conference luncheon, Fred G. Aandahl, Assistant Secretary of the Interior, told his listeners that Illinois is more fortunate with its water supplies

Fred G. Aandahl
Giant figures for the problem

than are many sections of this country. Groundwater tables have fallen from 25 to 50 ft in many areas during the past 10 years, and in some places in the West water is being pumped from depths of 600 ft, he said.

In stressing the growing national problem of water, Mr. Aandahl declared that an increase in total supply is not the basic solution; instead, it is a problem of making better use of the water that we already have.

Driving home this point, he quoted some giant-size statistics: average daily precipitation over the U.S., 4,300 billion gallons; lost through evaporation, 75%; used from the remaining 1,200 billion gallons, 60 bg; lost to the sea, 1.9 million cfs.

Secretary Aandahl cited research into desalting seawater and brackish sources as best hopes for solving the water problems—along with evaporation control.

• **Wary of population growth**—Although most of Illinois has been blessed with considerable precipitation this year, replenishing municipal, industrial and private water supplies, a number of communities are faced with two major problems. They must expand their water supplies to avoid shortages during droughts, and they must plan for population growth.

Quoting U.S. Department of Commerce figures, Lewis S. Finch, chief engineer, Indianapolis Water Co., warned his listeners that Illinois can expect a population increase of two million persons by 1970. This will be a 22% increase over the state's 9.3 million population in 1955, he said. Based on projected national consumption, Illinois water demand will be increased 60% by 1970, he said.

According to Clarence W. Klassen, chief sanitary engineer, Illinois Department of Public Health, during the 1952-55 drought a total of 65 public water systems in Illinois were in "bad straits as far as ample supplies were concerned."

Pollution abatement is the most serious problem facing many communities today, declared Wendell R. Ladue, himself a water man, superintendent and chief engineer, Bureau of Water Supply, Akron, Ohio. The problem, he said, has three parts: Locate, ameliorate or eliminate known sources of significant domestic and industrial pollution; prohibit, prevent or reduce new sources of pollution; and utilize fully the self-purifying capabilities of the receiving streams.

Alex Van Praag, Jr., consulting engineer of Decatur, summed up the message brought to the businessmen by the engineers at this businessman-sponsored conference: "Procrastination followed by hasty efforts and panicky decisions, while hoping for lower costs, is not the answer," he declared.

Appropriative Measure Added to Riparian Law

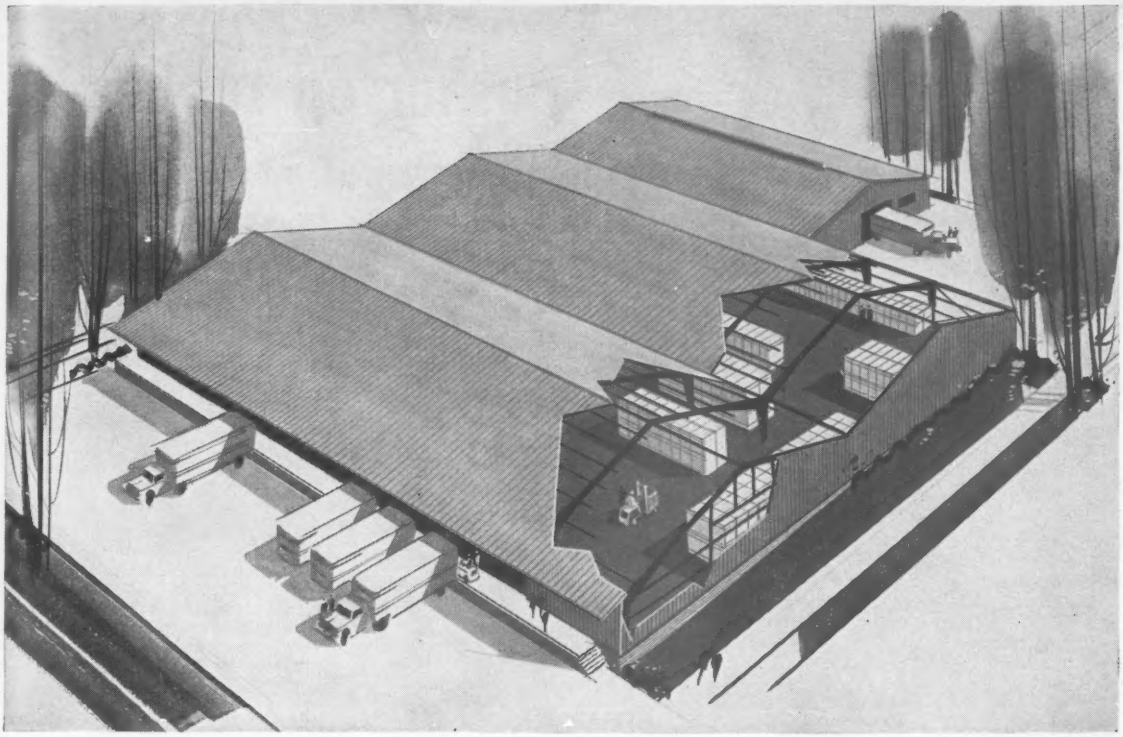
Wisconsin's Gov. Vernon Thomson has signed a bill permitting withdrawal of stated amounts of "surplus" water from streams by riparian owners for use on contiguous lands, if the State Conservation and Public Service Commissions approve.

This measure was passed by the Wisconsin legislature after it decided not to act on a proposed comprehensive revision of the state's water laws.

In signing the bill, the governor declared: "This will give needed relief to an important segment of our farm economy while at the same time it retains supervision of water use by the public service commission.

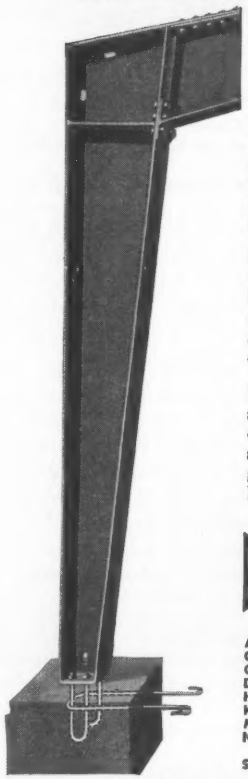
"In addition, it provides further assurance of proper water use by adding the conservation commission and its staff to the public service commission to insure that withdrawal of waters is not detrimental to lakes, streams or other riparians."

The legislation is effective until Jan. 1, 1959, and during this period water uses will be studied by both commissions and by a committee created by this session of the legislature. The Wisconsin legislature's action appears to be the start of putting some appropriative doctrine into the state's set of riparian laws.



Warehouse Operators get low-cost, rugged, clear-span facilities

with NEW STRAN-STEEL BUILDINGS



Sturdy Tapered Frame Design Puts Strength Where Needed

The sturdy, clear-span design of Stran-Steel buildings makes them ideal for efficient materials handling and provides maximum space for storage. In addition, new Stran-Steel buildings have a look of quality never before achieved in an all-steel structure.

Start with the smart *Stran-Satin* finish. *Stran-Satin* metal wall, exclusive with Stran-Steel, provides a strong, durable exterior with the weather resistance of zinc-coated steel. Peaks, gables and eaves are completely enclosed with smart fascia flashing.

Under this attractive exterior is a rugged steel structure. At the peak and knee, the continuously welded rigid frame I-section steel plate beams are securely bolted together. Each frame is also permanently bolted to the foundation.

New Stran-Steel buildings are quickly erected at minimum cost, provide clear, unobstructed space for large equipment, and may be provided with such required accessories as overhead craneways or large access doors. With Stran-Steel buildings, you get the cost-saving features of a pre-engineered structure in a quality building that is fire-safe and easy to insulate. They are available in any length, with widths of 32, 40, 50, 60, 70, and 80 feet, and multiples thereof.

Up to $25,000 is available to finance these buildings through the Stran-Steel Purchase Plan. As little as 25% initial investment; up to 5 years to pay. Ask your Stran-Steel dealer for the complete story. He is listed in your classified telephone directory under Buildings—Steel.

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Power-packed pusher on rubber

speeds loading of modern scrapers for faster, more profitable cycles

On big land-leveling job at Colorado Springs, Colo., Twin-C helps earlier model 25-yd. LeTournapull to heap a full load fast. Team of 2 "B's", with Twin-C pushing, moved an average 5,000 yds. each 9-hr. day. New Fullpak B now has increased capacity—27 yds. heaped.

Now you can add *speed* to *power* in your loading operation . . . cut cycle time for more payloads per hour. Just watch the LeTourneau-Westinghouse "Twin-C" — a 420 hp pusher with matched drive on all 4 wheels. Here is a giant pusher with *speed* — up to 20 mph, plus *power* — up to 65,000 lbs. of drawbar pull by actual test.

Twin-C positions fast for push . . . makes immediate, sure contact. It helps scraper get full load at a speed 20% or more over the rate possible with crawlers. Then, at end of push, Twin-C gives scraper final high-acceleration boost out of cut, so scraper operator can shift directly into higher haul gear. It's another cycle-time-saver that only rubber-tired speed can provide!

Synchronized engines, transmissions

A single throttle controls both synchronized engines of Twin-C. Dependable constant-mesh transmissions with torque converters automatically provide best power-speed ratio for all requirements. Each pair of drive wheels is controlled by its own exclusive L-W power-transfer differential. When one wheel starts to spin, wheel on opposite side gets power boost (up to 80% of total).

In spite of its vast power and size, the big Twin-C is highly maneuverable. It has Tournapull's wagon-type power-steer — through large ring gear and pinion in yoke connection. Machine turns in short radius, can position fast for next push. You'll find this pusher makes earlier contact with scraper . . . often while still in turn. When steering motor brake is released, rear unit automatically swings into line with front. This is just one way the Twin-C operator can chop valuable seconds off loading cycle!

2½' wide tires grip and float

All tires on Twin-C are big, low-pressure, wide-base type — 29.5 x 29, 22-ply rating. Tire lugs grip a wide area, provide excellent traction. (Hydroflation adds an extra 5 tons weight for even better ground grip.) Each tire gives you 400 sq. in. of contact area. Low inflation pressures "float" pusher over loose, uneven ground.

Good view of cut, easy controls

Operator of Twin-C has much better view of his work than operator of a crawler pusher. Seat and controls are up high and forward, on the front unit. Lining machine up for push, operator has full view of scraper push-block — right up to moment of contact.

With exclusive fingertip control, he adjusts height of his own big power-operated push-plate for best contact. Once push starts, push-plate "floats", maintaining solid scraper contact automatically.

Add Twin-C's push-power to your fleet

Get all the facts on how 420 hp Twin-C can raise the production of your rubber-tired scraper fleet. Ask for particulars and specifications.

Fullpak, Twin-C—Trademark; Tournapull—Trademark Reg. U.S. Pat. Off. TW-1407-DC-1

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

On 3,696-ft. cycle... up and down 4 to 13% grades...

three 7-yd. "D's" haul 168 yds. hourly

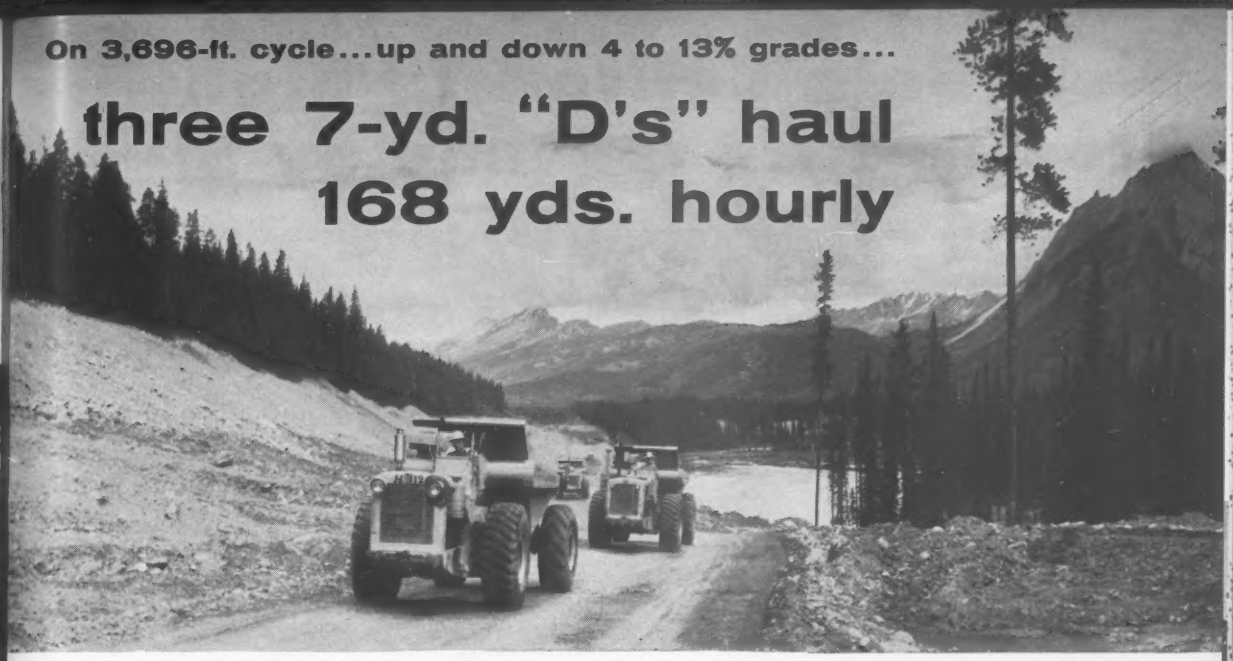


Photo shows Rear-Dumps on return portion of cycle, climbing grades to 12%. This new section of Trans-Canada Highway will eliminate narrow twisting roads with many hairpin turns.

Square M Construction Company Ltd. of Edmonton, Alberta, had 1,200,000 yds. of earth and rock to move on a 6-mile section of Trans-Canada Highway 1, eight miles west of Banff, Alberta. To help haul material, contractor brought in 3 LeTourneau-Westinghouse 7-yd. (11-ton) D Rear-Dumps. Here's how Tournapull haulers performed:

Rear-Dumps are shown here building a 10-ft. lookout point between grade of new highway and Bow River.

8 loads per hour

Three to 4 passes of a 2-yd. shovel loaded D Rear-Dumps with 7 yds. of rocky material in 58 sec. Units hauled 1,584 ft. down 4 to 13% grades to fill area, where load was spread in 18 sec. On 2,112-ft. return, units climbed grades to 12%. "D's" completed the 3,696-ft. cycle in 6 min. 40 sec. Each Rear-Dump hauled 8 loads per hour... for a total combined production of 168 yds. hourly.

Perfect safety on steep grades

On the steep-grade portions of each cycle, Rear-Dump's positive kingpin power-steer... 4-wheel, multi-disc air brakes... and excellent traction of big, low-pressure tires... gave operators complete safety and control, even at high speeds.

"The equipment for today's jobs"

With work progressing ahead of schedule, Foreman Carl Andreff said, "These units are the equipment for today's jobs. They can maneuver in tight places... travel through soft, spongy going."

Insure future earnings

An added advantage with Tournapulls is that rear-dump, scraper, bottom-dump, lift-and-carry crane, or flat-bed hauler can be used behind same prime-mover. With this interchangeability, you can adapt Tournapull to any type of future operation... keep busy the year-around... earn more annually. There are 3 sizes of L-W Rear-Dumps to choose from: 11, 22, or 35-ton capacity. Call or write for production figures, price, and delivery.

Building a 10-ft. lookout point between grade of Trans-Canada Highway and Bow River, D Rear-Dump spreads its load in about 18 seconds. Electric controls respond instantly for positive, controlled dumping.

Three to four passes by 2-yd. shovel fill 11-ton Rear-Dumps to heaped capacity. Low rear entry and wide bowl provide easy target for shovel operator... allow fast swing-out of shovel dipper, let shovel operator heap maximum yardage with minimum spillage.

Tournapull—Trademark Reg. U.S. Pat. Off. DR-1375-H-b

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

New Baja California highway reduces travel time by 50%

Although Baja California, Mexico, is rich in minerals, marble, and alabaster; though it contains vast quantities of fertile farm land, and is becoming a popular resort area, its full resources are still relatively undeveloped. Lack of good roads and transportation are major drawbacks to increased prosperity in the area.

One important north-south highway is now being built by Zeus, S.A. of Mexico, D.F. for the Mexican Federal government and the state of Baja California Sur. About 160 miles long, and 40 feet wide, the road will connect the cities of La Paz and Santo Domingo. When completed, it will reduce travel time between these two important cities from 8 hours to 4.

This highway is badly needed to accommodate increasing tourist travel to La Paz (a rapidly expanding resort city). It will also provide better transportation for products of the flourishing farm country near Santo Domingo.

3 graders handle all leveling

Fill needed for the road is brought in by eight 4-cu. yd. trucks. These machines deliver about 40 cubic yards of alluvial loam and shale fill every hour. Three 123 hp Model 550 Adams motor graders move this material into place. They rebuild shoulders, fine-grade, handle all daily surfacing, so that traffic can continue to use the road while work is in progress. These fast-moving, versatile graders do all other leveling work that may be required, in construction of the new highway.

Because Adams graders have a wide range of speeds (15 power-speed combinations, forward and reverse), all of these assignments are accomplished at the fastest, most efficient rate.

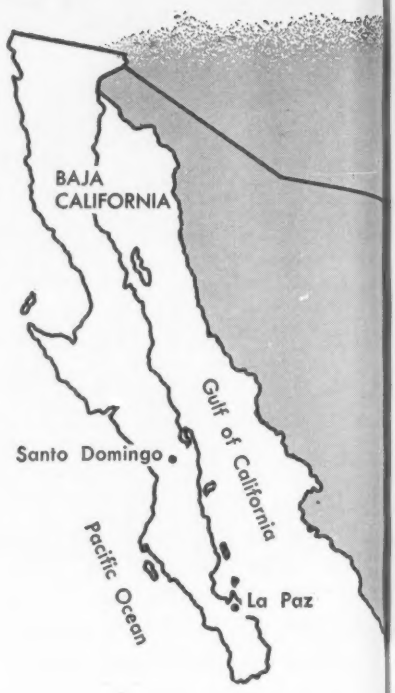
When maintaining the fill, Adams graders work in third gear, at speeds to 4.6 mph. Building shoulders, or handling fine grading on the project, graders usually operate in second gear, at a speed of approximately 3.2 mph. Under average conditions, an Adams grader is able to reform about .6 mile of road shoulder in an hour.

Pleased with his graders' performance, Engineer in charge Joaquin Ambia said: "We obtain correct operation and good service."

"Best machine in my charge"

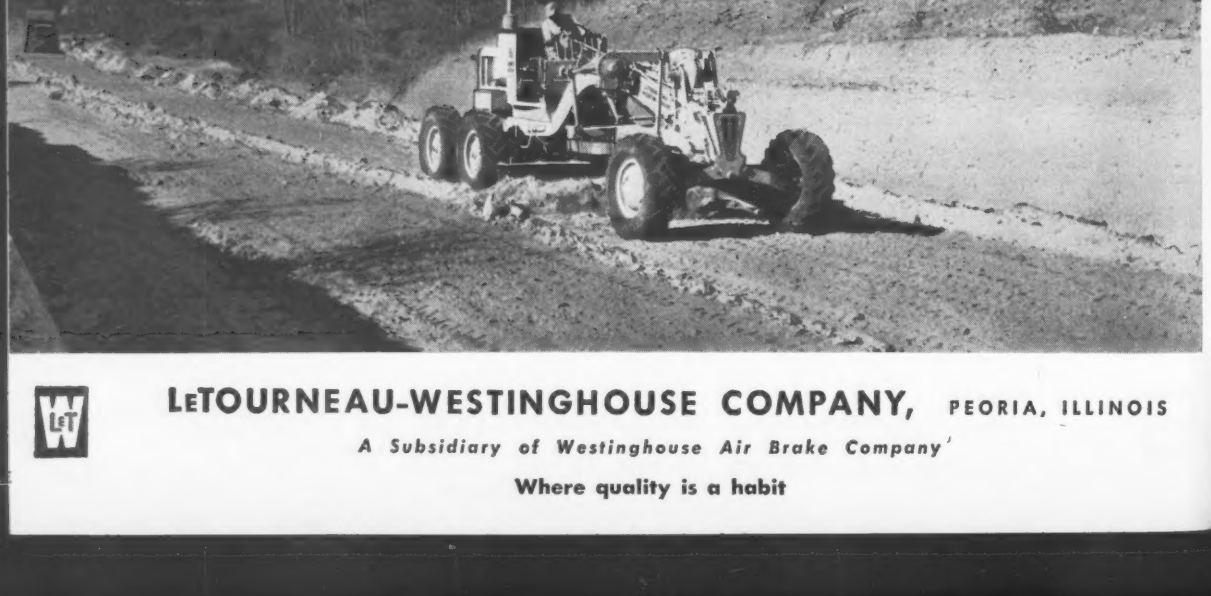
Lubrication and maintenance time on the Adams grader is less than that on ordinary graders. Says Master Mechanic Jorge Vargas, "The Model 550 Adams motor grader is the best machine I have ever had in my charge."

Write us for more information on Adams graders, available in 6 sizes from 60 to 190 hp.



Operator Alberto Jimenes reports that he finds the Adams motor grader is "very easy to steer. We all like the good view we get of the blade when we are operating an Adams motor grader," he says.

Adams—Trademark AG-1385-H-b-5



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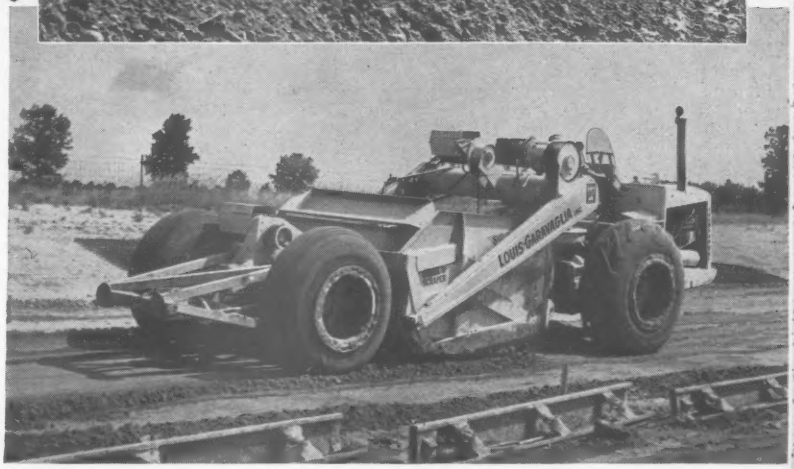
Where quality is a habit

U.S. 112 Bypass, Niles, Michigan

Garavaglia & Pierson Contracting Co.'s D Tournapull spreads gravelly dirt from drainage ditch cuts, to build up shoulders on contractor's 2.9-mile road grading and paving job, 5 miles north of Niles. "'D' beats them all," says Supt. Waino Niemi. "It's an excellent piece of equipment compared to others. Wish we had more of them." Grade Foreman, Mike Kitchen, admits he's an old "D" fan..."I've always liked Model D's. They're really handy for trimming." From the cockpit, operator Dallas Bauer shouts, "This machine is as good a dirtmover as you'll find."

U.S. 12 Bypass, Jackson, Michigan

Another G & P Co. Tournapull self-loads sand... grades and levels sand cushion for 13.2 miles of 2-lane concrete roadway. Says Paving Superintendent, John D. Stein, "We're well satisfied. This 'D' was purchased strictly for clean-up... and it performs its job very well. Service from our dealer has been good."



for clean-up and handyman dirtmoving this Michigan outfit likes roadable "D's"

Two LeTourneau-Westinghouse D Tournapulls® are shown moving dirt on two of Garavaglia & Pierson Contracting Co. work projects, 125 miles apart... 82 and 193 road miles from contractor's home base at Center Line, Michigan.

These easily roadable scrapers fill contractor's need for fast, flexible dirtmovers to handle both large and small yardage assignments on contracts all over Southern Michigan, Northern Ohio and Indiana. "D's" travel under their own power... with regular operator at the controls. Garavaglia & Pierson found it profitable to drive their 29.5 mph Tournapulls as much as 200 miles from home base, to handle clean-up and handyman earthmoving on large road building projects, and other work. Efficient, roadable "D's" will pay off on *your* scattered dirtmoving assignments too!

New 9-yd. D Tournapull works alone, or in fleets

With its bigger capacity, new 9-yd. D Tournapull is large enough and fast enough for profitable use in pusher fleets... yet small and maneuverable enough for economical one-man, self-load dirtmoving. On production jobs, Tournapull works fast... moves more earth in less time than big crawler-scraper combinations costing thousands of dollars more.

"D" works in tight quarters and around obstructions, makes 180° turns in an area only 24'3" wide (nearly 4' less than its length). Its finger-tip electric controls precisely regulate depth of cut or spread to accurately satisfy specifications. Tournapull's exclusive power-transfer differential keeps machine working in footing where other scrapers bog down.

Highway mobility cuts delays

You don't need a truck and trailer to haul this "Handyman D". It's just 8' wide, under 9-ton axle-load limits, and rolls on big rubber tires... roadable in 48 states without permit. You eliminate all loading and unloading costs... reduce work-stopping delays. "D" *runs* from one work site to the next at speeds to 29.5 mph.

Call or write for complete information and a demonstration of new roadable, 9-yd. "D Handyman" Tournapull.

DP-1252-H-b

LeTOURNEAU-WESTINGHOUSE COMPANY, PEORIA, ILLINOIS

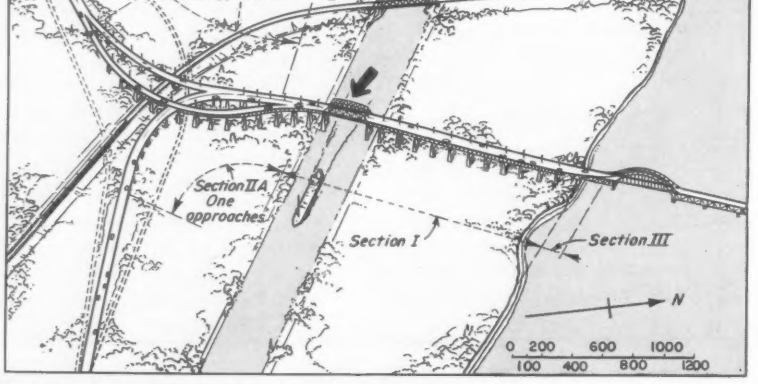
A Subsidiary of Westinghouse Air Brake Company

Where quality is a habit

Bridge Blaste

To provide the headroom needed for the sea-going ships that soon will be using the St. Lawrence Seaway canal, it was necessary to elevate various bridges. The Jacques Cartier was eased up by jacks; however on the Honore Mercier . . .

HONORE MERCIER BRIDGE and its approaches. Temporary roadway branching off to the right near arched span carries detoured traffic.



HOW Montreal's Honore Mercier Bridge will look after extensive alterations are made to its approach sections. Adjacent structure is the CPR railway bridge.

There are many ways to increase the height of an existing bridge—and in the region of Montreal where numerous structures must be elevated to provide clearance needed by the St. Lawrence Seaway, a variety of methods is being used. The Jacques Cartier Bridge is being jacked up (ENR Aug. 15, p. 52) but the Honore Mercier Bridge is being "blown up"—and in neither case is traffic being stopped.

On the Mercier bridge, 1,800 ft of land structure is being altered. At this location, the Seaway will be a canal, cut south of the river under the new land approaches to the existing bridge, to bypass the Lachine Rapids of the river just 2 miles south of Montreal.

Built in 1934, the 2,900 ft long Mercier Bridge has a concrete roadway supported by 11 deck truss spans, 13 concrete piers and a 400 ft continuous tied arch span providing clearance for river steamers which "shot" the Lachine Rapids, a thrilling tourist attraction. Provision was made on the original bridge for installation of a lift span at the north end, where the Seaway canal was to have been located. The change in the Seaway plans has necessitated the removal of 1,000 ft of the south approach, replacement of the concrete piers and construction of 6,700 ft of new steelwork of varying spans and a new span 300 ft long to cross the soon-to-be-built, 250 ft wide canal.

Montreal, being an island, needs full use of all its connection with the mainland, so the maintenance of traffic throughout all bridge work is a must. To keep traffic moving over the main part of the structure, the contractor had to build a high fill bypass at the south end of the bridge, and connected it by means of a timber trestle with the main bridge at the edge of the river.

• **Many contracts**—Rehabilitation of the structure is being handled under several separate contracts. Dominion Bridge Co., Ltd., has two sections of the work. One is the steel work for a 3,300 ft, 4 lane approach road made up of continuous deck trusses, simple deck span girders and a 300 ft span, and the other, fabrication and erection of 3,700 ft of simple deck span girders for the two 26 ft roadways. About 5,500 ft of the approach spans follow horizontal curves. In all, Dominion Bridge will place 11,000 tons of steel for about $6 million.

Among the other contracts is one for demolition of existing piers—a job being done by Beaver Construction Co., Ltd.—and two for construction of new piers, with Pentagon Construc-

To Make Way for Raising Operation

tion, Ltd., building 13 and J. D. Stirling, Ltd., erecting 43 plus two abutments.

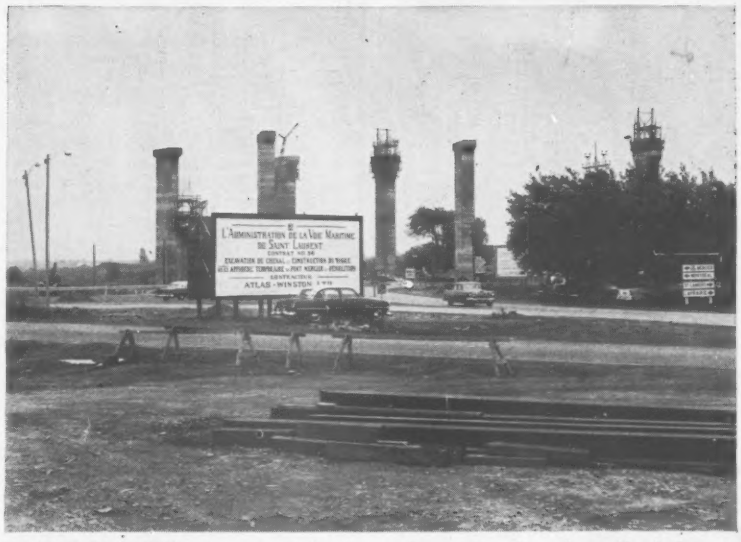
Demolition of the concrete sections south of the main span was accomplished in a rather unusual manner. For obvious reasons, the two spans adjacent to the arch were demolished with jackhammers, acetylene torches and a headache ball. But a single push on the generator handle dropped the remaining 18 piers and the spans between them. No blast holes were drilled in the superstructure steel or concrete, but on the piers to be dynamited, vertical blast holes were drilled down the center of each pier leg. The plan was to demolish the bridge with explosives so as to break up the concrete as well as bring it down to the ground.

• **Dynamite used**—In all, about 1,200 lb of dynamite—70 lb per pier—was used. With the blast, there was a complete disintegration of the piers and the spans dropped simultaneously. After the blast, the condition of the dropped spans was surprisingly good, and most were intact except for ⅛ to ½ in. vertical to diagonal cracks at the girder haunching. The spans were broken into manageable chunks with a headache ball.

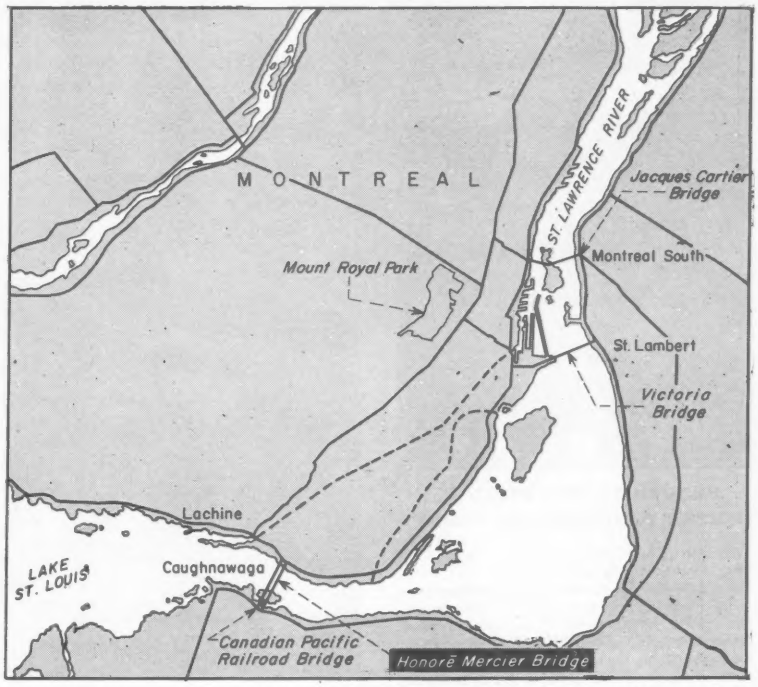
In the new section of the bridge, the continuous deck type spans will be supported by reinforced concrete piers varying in height from 60 ft to 110 ft. Because the pier sides are vertical rather than tapered, the contractor is able to use slip forms. The forms themselves were job fabricated by the contractor, but for raising the forms, "Concretor" slip form equipment was used. The "Concretor" method, which utilizes manifolded hydraulic jacks, was originated in Sweden in 1946.

The lifting system is very simple. After the forms are set up and adjusted for width, a special yoke is fabricated with bottom pieces that fit under the bottom waler of the form. The side legs of the yoke run to the top of the form and are there connected by a cross piece. In the center of this cross piece is a jack with a vertical 1 in. hole running completely through it. A 1 in. rod, 11 to 12 ft long, is dropped through the hole in the jack so that the bottom of the rod rests on the footing.

Within the jack are two sets of teeth —one at the bottom of the cylinder and one at the top of the piston. These teeth are so arranged that on application of oil pressure by the electric fuel pump, one set grabs while the other releases. In this way, the jack is able to "crawl" up the rod.



OF THE 56 PIERS being erected for the southern approaches, about 43 of them are being constructed using "Concretor" slip-forms.



SITE of the Honore Mercier bridge combined with Montreal's insular position, make it the major southern portal for traffic into and out of the city.

A sleeve, which is nothing more than a 1 in. pipe, is attached to the bottom of the jack so that it encompasses the rod. Since this sleeve is the length of the form, and moves with the jack, it keeps the green concrete from seizing the rod. This makes possible the salvaging of all jack rods. As the form is raised, additional sections of rod are added. The joint between rod sections is made by means of an internal stud similar to those found on drill rods,

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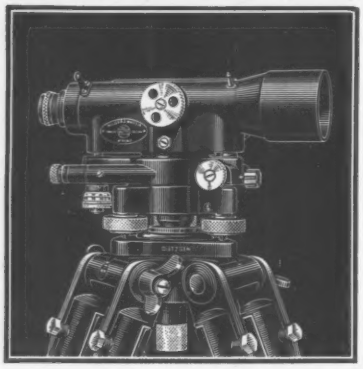

PROVEN IN THE FIELD . . . WHERE PERFORMANCE COUNTS

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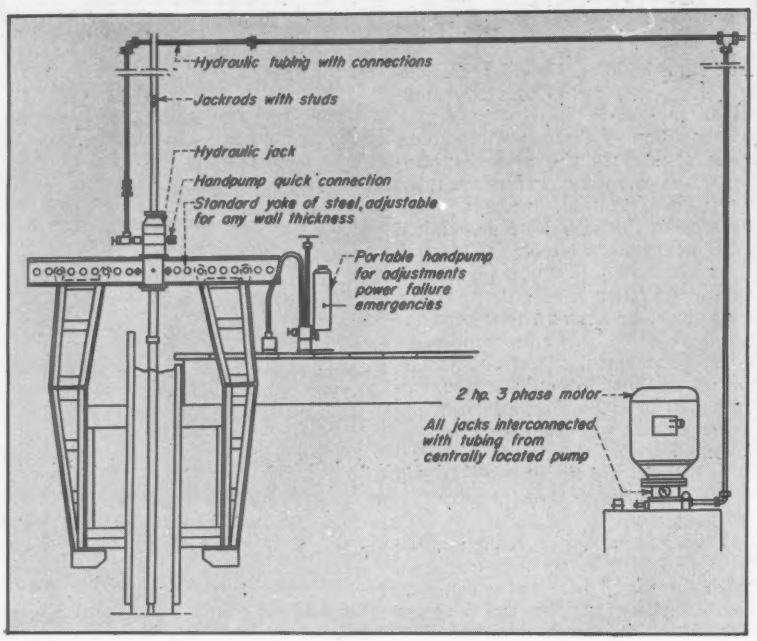

Hydraulic tubing with connections
Jackrods with studs
Hydraulic jack
Handpump quick connection
Standard yoke of steel, adjustable for any wall thickness
Portable handpump for adjustments power failure emergencies
2 hp. 3 phase motor
All jacks interconnected with tubing from centrally located pump

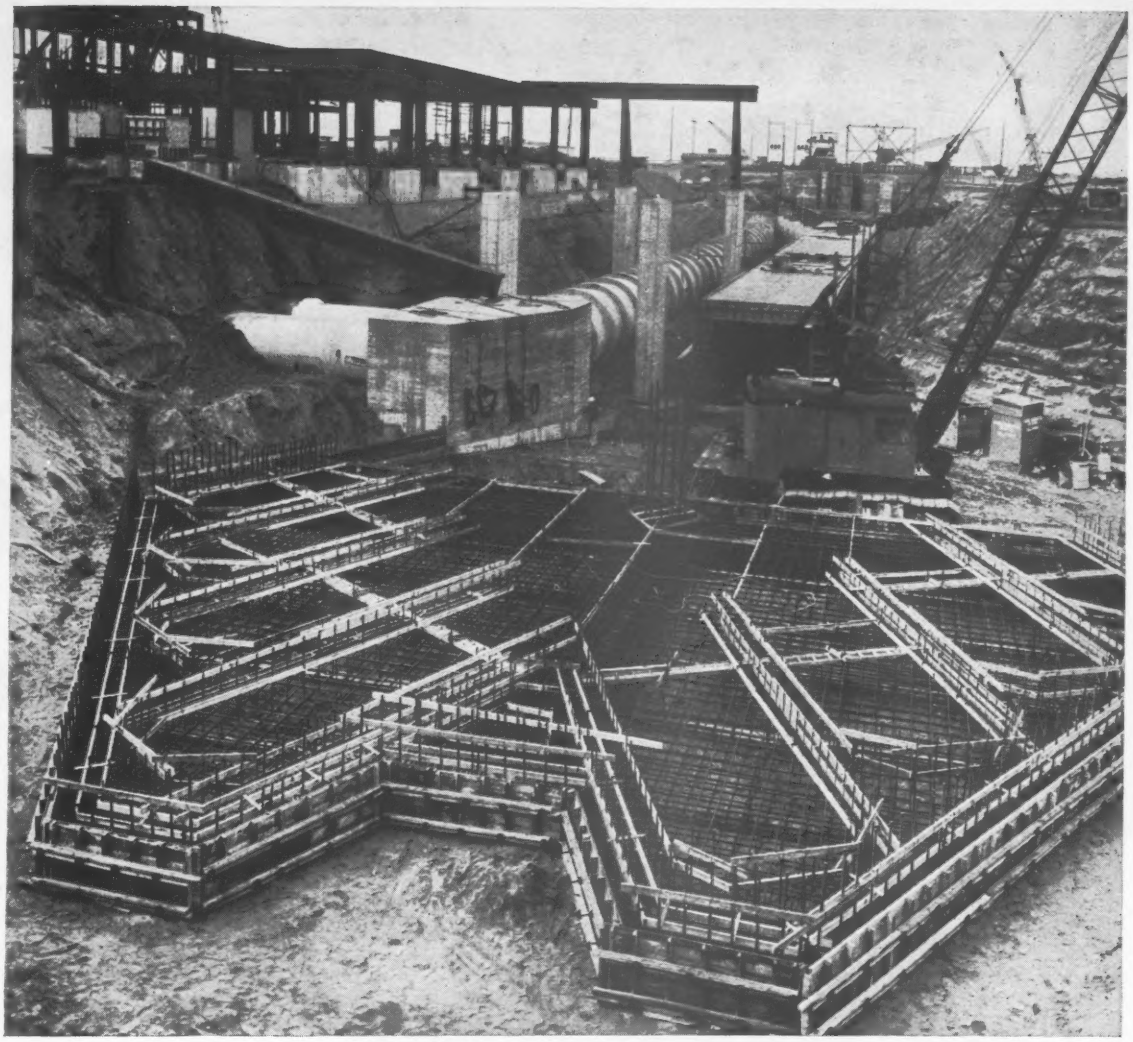
TYPICAL slip-form cross-section indicating the lifting principle involved with the automatic equipment obtained from B. M. Heede Canada, Ltd.

AFTER THE BLAST, the fallen sections of the Honore Mercier Bridge remained in surprisingly good condition. This was attributed to the composite concrete construction.

thus eliminating any variations in rod size.

Other than a small guy to steady the top of the jack rod, no aligning equipment is needed because once the form is set, the concrete encased by it serves to hold the equipment on vertical line. As many as 85 jacks can be operated simultaneously through a manifold at a single pump.

Speed of form-raising is easily controlled by one man at the pump, and lifts of as much as 45 ft in a single day have been obtained.



Southern California Edison's new steam generating plant will supply more electricity for the company's vast southern and central California service area. *General contractor:* Bechtel Corporation; bar fabricator: Rutherford and Skoubye.

New steam generating plant will supply electric power in Southern California

To help supply vitally needed electric power in Southern California, a new steam generating plant is being built for the Southern California Edison Company on Pacific Coast Highway, south of Huntington Beach. The new plant, planned to have an ultimate capacity of 400,000 kw, is scheduled for completion in 1958.

Shown above is the base for a pumpwell which will provide the millions of gallons of water needed to cool the condensers of the plant's twin steam turbine generators. Two tunnels, more than 350 ft long, will carry 14 ft diameter conduits under Pacific Coast Highway and 2,000 ft into the ocean to collect water for the cooling system.

Eight pumps, to be installed along the periphery of the fan-shaped pumpwell, will provide power for the intake and exhaust of the water. Some 1800 tons of Bethlehem Reinforcing Bars, rolled by Bethlehem Pacific Coast Steel Corporation, are being used in the construction of the plant.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Modern industrial plants such as this one for the International Silver Co. at Wallingford, Conn., are constructed with few accidents because of this contractor's safety planning and good supervision.

HOW SAFETY DOWN

High safety standards and expert supervision keep accidents at a minimum during construction of Meriden Hospital, Meriden, Conn. The H. Wales Lines Company is widely known for construction of industrial plants, church buildings, civic clubs and school and bank buildings.

WNTHE LINE CUTS OPERATING COSTS FOR THE H. WALES LINES CO.

BY MR. FRIENDLY

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If you're interested in a service that may help you, write today for full information and a free copy of "Foremanship and Accident Prevention in Construction." American Mutual Liability Insurance Co., Dept. C, 142 Berkeley St., Boston 16, Mass.

AMERICAN MUTUAL

Service from 78 fully staffed offices!
Savings opportunity from substantial dividends!

And just for the record, here are fifteen more contracting and construction firms that have *saved* through substantial dividends and lower premium rates (due to fewer accidents), thanks to Mr. Friendly:

Atkinson Dredging Co. . . . . Norfolk, Va.
Ben Hur Construction Co. . . . . St. Louis, Mo.
W. J. Barney Corp. . . . . New York City, N. Y.
Bryant & Detwiler Co. . . . . Detroit, Mich.
Fitzgerald Bros. Construction Co., Inc. . . . Troy, N. Y.
G. & H. Steel Service, Inc. . . . . Drexel Hill, Pa.
Hughes-Foulkrod Co. . . . . Philadelphia, Pa.
Kansas City Structural Steel Co. Kansas City, Kansas
Le Chase Construction Corp. . . . . Rochester, N. Y.
T. A. Loving & Co. . . . . Goldsboro, N. C.
H. C. Price Co. . . . . Bartlesville, Oklahoma
Southern Engineering Co. . . . . Charlotte, N. C.
The Thompson Construction Corp. Albany, N. Y., and Camden, N. J.
Warren Brothers Roads Co. . . . . Cambridge, Mass.
Winn-Rau Corp. . . . . Kansas City, Mo.

In California's rugged Sierra Nevada, where there is plenty of rock . . .

Builders Save Mil

WISHON DAM—Concrete-faced, 3.7 million cu yd rockfill is biggest structure on PG&E Kings River development.

COURTRIGHT DAM—Rock is dumped down high face—150 ft in this case—to insure good consolidation of dam mass.

Save Millions on Two Faced-Rockfill Dams

Substantial economies are being realized on two rockfill dams under construction in California's Sierra Nevada Mountains. Both are major units of the Kings River development of Pacific Gas & Electric Co.

Design economies on the concrete-faced rockfills have been achieved with no sacrifice in the integrity of the structures—by use of steeper upstream slopes and thinner layers of costly placed rock between the rock mass and the concrete facing. Construction economies are resulting from effective rock quarrying procedures and through higher production of placed rock as a result of improved crew organization.

The two dams are the 3.7 million cu yd Wishon Dam on the North Fork of the Kings River and the 1.5 million cu yd Courtright Dam on Helms Creek, a tributary stream. Crest length of Courtright is 850 ft and crest length of Wishon is 3,350 ft.

As to height, Wishon rises 290 ft from low point in its foundation (maximum water surface is El 6,550). Courtright has a comparable height of 310 ft (maximum water surface at El 8,174). Behind the 390 ft high Paradella Dam now under construction in Portugal, Courtright and Wishon will be the third and fourth highest concrete-faced rockfill dams in the world. Second place is held by PG&E's Salt Springs Dam, 328 ft high.

• **It's rockfill country**—Concrete-faced rockfill dams have their best application in remote locations where other materials would be costly, where development of concrete aggregates in mass quantities would be expensive, and where extensive deposits for a rolled earth core are not readily available. California's High Sierra with its massive granite formation is a natural environment for such dams.

The site at Courtright, a narrow canyon flanked by sheer granite cliffs, would be ideal for a concrete arch dam. But high elevation and remote location with the attendant costs for importing cement and the scarcity of natural aggregate material make a rockfill far more economical. The Wishon site might be well suited for a rockfill with sloping compacted earth core. But no suitable deposit for borrow of core material is available within 20 miles. Result is that a concrete-faced rockfill structure is cheaper at Wishon, too.

This type of rockfill dam consists of three basic elements. First, there is the huge mass of dumped rock, basic resistance to the forces of water stored by the dam. The rock is sluiced for maximum settlement and point-to-point contact. Sluicing also washes fines into the voids among the larger rocks. But the rockfill is far from impervious.

Second major element of this type dam is its facing membrane, in most recent cases concrete, which makes it watertight—or nearly watertight. Some designers have been reluctant to adopt concrete-faced rockfill dams because this membrane needs a periodic check. Some settlement of the rock mass is bound to occur, and the result can be cracking of the concrete, leakage. But PG&E engineers have found that improved rock placing techniques—including generous sluicing of the dumped fill—and careful design of concrete joints have reduced such maintenance problems to a minimum.

Third major element is a layer of crane-placed rock that lies between the dumped rock mass and the concrete membrane. Major function of this element is to provide a more smooth surface than that of the dumped rock to minimize the amount of concrete required for the membrane. Originally, it was thought that the placed rock served better to distribute forces acting on the membrane into the mass of dumped rock. But, by considering the placed-rock layer almost solely as a finish course, PG&E engineers have been able to make it thinner on these dams than ever before.

• **Design savings**—PG&E decided to save money on crane-placing of rock as a result of experience with other dams of this type. In particular, observations of the concrete face of Lower Bear River Dam (ENR Jan. 22, p. 35), completed in 1952, demonstrated remarkable freedom from cracking in the concrete membrane even though the thickness of placed rock had been reduced from earlier designs (to 10 ft at crest and 22 ft at base). Thickness of placed rock normal to the face on the two new dams is under 7 ft at the crest and a little more than 11 ft at the base. A conservative estimate would place the saving on the two Kings River dams in the order of $2 million; crane placement of rock is expensive.

The other main design change is the steeper upstream slopes; maximum slope at both Wishon and Courtright is 1:1. This compares with the uniform upstream slope of 1.3:1 at Bear River and a slope varying from 1.1:1 to 1.4:1 at Salt Springs Dam. The slope on the Kings River dams flattens out to 1.3:1 at the toe. Even so, the increased slope with resulting decrease in volume of concrete surfacing and placed rock could be conservatively estimated to save $1 million on the Kings River project.

• **Concrete design**—Concrete facing is cast in panels 60 ft square, except at the bottom and near the edges where smaller panels are cast to account for irregularities. Thickness of the facing is a minimum of 1 ft and it varies with the vertical distance from the dam crest in accordance with the expression $t=1.0+0.0063h$. Thus, for concrete 200 ft from the dam crest the thickness would be about 2¼ ft. This is minimum thickness as the concrete is placed in and around the placed-rock leveling course.

To accommodate possible settlement, the facing has both horizontal and "vertical" expansion joints. Actually, these joints are more apt to close as minor settlement occurs because the crest of the dam is usually arched slightly upstream.

Underlying the joints to permit action to develop are concrete beams cast on the rock. The "vertical" beams are 4 ft wide and the horizontal beams are 3 ft wide. Both are mopped with asphalt to develop a sliding surface.

The joint proper includes a copper seal at about mid-thickness. On these dams for the first time PG&E is using a layer of Styrofoam plastic underneath the copper water stop. This plastic is strong enough to retain the concrete as it is placed but will crush under heavy load to almost zero thickness. Above the water stop is a thickness of mastic that will squeeze out of the joint if the joint closes.

Operation of most concrete-faced rockfill dams is such that the entire face can be dewatered at periodic intervals—perhaps every three or four years—for inspection. But at Wishon, dead storage is such that the toe of the dam probably will always be under water. However, settlement at the base of the dam is expected to be a minimum so no significant damage to the concrete facing is expected. Even so, as a precaution, a double layer of 2x12 timbers has been laid over the concrete. The second layer is lapped so the joints do not coincide. The thinking here is that the timber will help to arrest leakage by encouraging siltation.

• **Placed rock is costly**—Construction operations center around quarrying, hauling and filling operations. Special emphasis is given to placed rock. Reason for this can be seen from the fact that even though the 3.7 million cu yd of rock at Wishon Dam includes less

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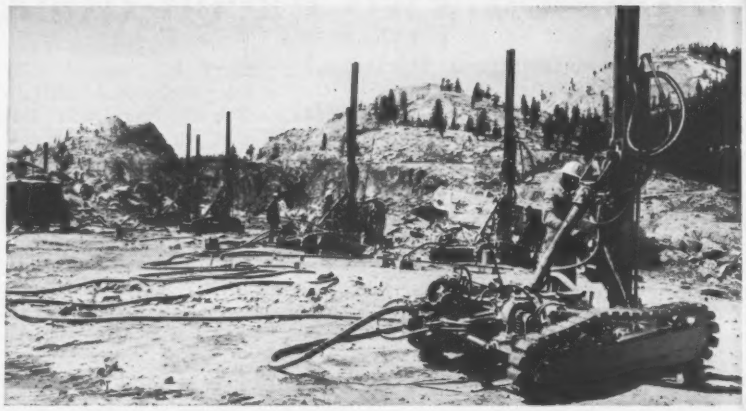
. . . Economies in moving, placing rock



SELF-PROPELLED DRILLS bore 2¾ in. dia holes on 7 by 8 ft centers at Courtright Dam quarry. Granite at this site at El 8,000 is exceptionally good.

than 200,000 cu yd of placed rock, cost of the placed rock is about one-third of the cost of all the rock in the dam.

The placed-rock layer starts with large sizes positioned in the face of the dumped rock so as to fill the voids as well as possible. Specifications require the large rock to average not less than 3 tons. At Wishon placed rock is going in at sizes up to 15 tons. Smaller rock weighing several hundred pounds is placed in the voids between the large rock. And the remaining voids are chinked with even smaller rock that can be moved by hand. No rocks may be less than 2 in.

• **But savings are realized**—One of the savings in placed rock on the current work is the use of Lewis pins for handling the larger rock. These pins develop from granite quarry work in the northeastern U. S. Holes are drilled with a jack hammer on each side at an angle. The pins are inserted and hold their position by lifting force exerted on them. Previously all placed rock had been handled by slower and more dangerous cable slings. The medium sized placed rock on the current work is sling handled.

However, the greatest economy here has been achieved through effective organization of rock placing crews. At Wishon Dam the contractor—a joint venture called Morrison-Walsh-Perini—assigns a separate crew to each of five large cranes. Each crew includes a foreman as well as the necessary crane operators, oilers, jack hammer operators and laborers. And each crew operates independently and is completely equipped with a small air compressor for jack hammer operations in addition to the crane.

In addition to the rock placing crews, a roving superintendent is in charge of all placed-rock work. His job is to see that each crew has the necessary supplies it needs. He selects good rock from the quarries and can direct trucks at any time to haul this rock to specific crane—the cranes are clearly marked with large numbers. And he sees that the crews are adequately staffed and equipped with pins, jack hammer bits, and the like.

HEAVY ROCK DRILLS bore 6½ in. dia holes on 15 ft centers for Wishon Dam quarry. Machines have their own air power. Unit at right is temporarily supplied by outside source while compressor is under repair.

Using these methods, average of the rock placing is 135 cu yd per crane per day. This is about three times the rate on rockfills in the past.

Large sized rocks are selected from the quarries. Smaller rocks are developed by passing loads through a trommel screen. Placed rock operations are on a 6 day week, 9 hour day.

(*Continued on p. 42*)

SIMPLIFY WINDOW WASHING

With Tramrail Equipment

REACH the windows easily. Work in safety and comfort. Reduce time required to one-half or less.

Yes, it pays every way you look at it to have your building equipped with a Cleveland Tramrail window washing system.

Tramrail is now needed more than ever before on new modern buildings with their tremendous window walls.

For smaller installations, as illustrated, hand-operated systems are satisfactory. For larger or higher buildings, Cleveland Tramrail motorized equipment is preferable, because of the additional time savings it makes possible.

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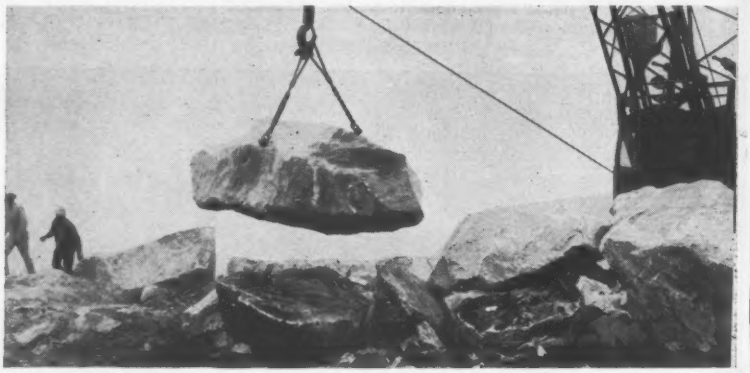
. . . A pound of powder makes a cubic yard of rock

ROCK IS EXCAVATED by 6½ cu yd electric shovel and hauled in 17 cu yd end dump trucks to be dumped and jetted in the mass of the dam.



ROCK FOR DAM FACE is lifted by pin-connected slings providing more positive handling than cable slings.

• **Rock quarrying**—Each of the two dams has two quarries for developing rock: There is a primary quarry from which most of the material comes, and excavation for the spillways is also used in each dam. In both cases the primary quarries are located within a half mile haul of the dam at an elevation where most haul is downhill. At Wishon, the spillway quarry includes about 480,000 cu yd of minimum solid excavation that bulks in placing to about 750,000 cu yd. At Courtright, the spillway quarry is much smaller.

Drilling at the main Wishon quarry centers around two self-contained rigs (having their own air compressors) that drill 6¼ in. holes. These holes are drilled to a 52 ft depth to pull a 45 ft quarry face. Holes are drilled on a 15 by 18 ft pattern two rows deep. Each shot includes about 70 holes and each hole develops about 450 cu yd.

The contractor has experimented with the use of ammonia nitrate as an explosive. This material has been developed by various chemical companies for fertilizer use and is much cheaper than ordinary powder. It has not been extensively used in construction before because it is a heavy gas producer. At Wishon some difficulty has been encountered with the chemical in wet weather, but in dry weather the results have been fairly good. The material is detonated with a charge of 60% powder. Result has been about 1 lb of powder per cubic yard of material.

At Courtright Dam, smaller self-propelled drills have been used. The 2¾ in. holes have been drilled on 7 by 8 ft centers. Production at Wishon has averaged about 14,000 cu yd a day, and at Courtright, 8,000 cu yd a day—both using two 9 hour shifts.

Excavation has been accomplished by large electric shovels with 6½ cu yd buckets at the main quarries. Smaller diesel shovels have been used to supplement the electric machines.

• **Rock dumping**—Rock is hauled in 17 cu yd end dump trucks. Specifications require that insofar as practical the material be dumped in lifts at least 60 ft high. Reason for such high lifts is that the tumbling, sliding action as the rock drops down the slope develops better compaction. At Wishon dumping is from both sides because the long crest length permits more flexibility in operations. Most of the rock is coming from the right abutment

(*Continued on p. 44*)

On the New Jersey Turnpike

Specified by:
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Security Chain Link Fence Company,
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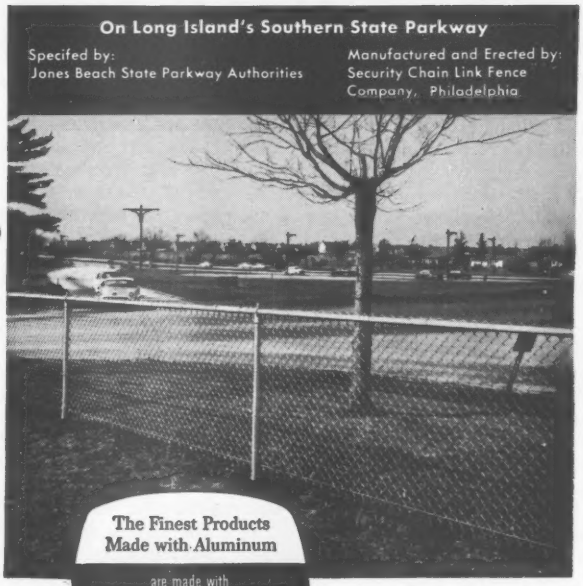
For longer life at lowest maintenance cost...

all-aluminum chain link fence

For real economy you can't beat all-aluminum chain link fencing. Absolutely rustproof, this modern fencing requires no protective maintenance, actually costs *less* in the long run because periodic painting is unnecessary. These two installations, both near the sea, underscore the high corrosion resistance that means long-lasting strength. Some 8,000 feet of 4' high aluminum fencing has been erected on the New Jersey Turnpike and 70,000 feet on the Southern State Parkway...15 miles of *proof* of good service, long life and economy.

For four-color brochure containing application and specification information on all-aluminum chain link fence and other aluminum highway products, call the nearest Reynolds Sales Office listed under "Aluminum" in classified phone books. Or write to
Reynolds Metals Company,
General Sales Office, Louisville 1, Kentucky.



On Long Island's Southern State Parkway

Specifed by:
Jones Beach State Parkway Authorities

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Security Chain Link Fence
Company, Philadelphia

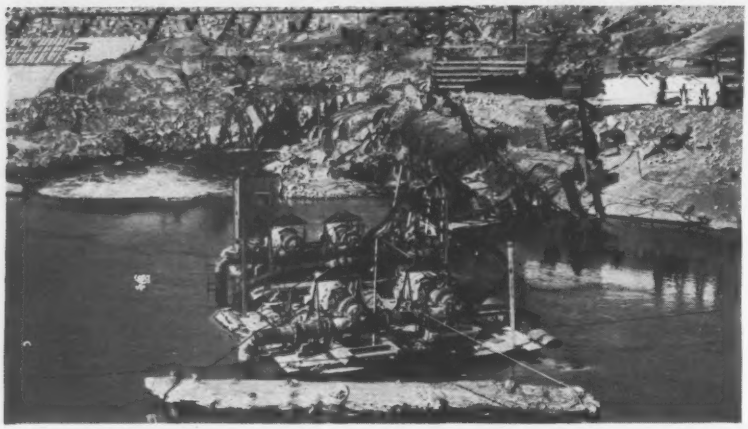
The Finest Products Made with Aluminum

are made with
REYNOLDS ALUMINUM

REYNOLDS ALUMINUM

See "Circus Boy", Sundays, NBC-TV Network. Watch for Reynolds on "Disneyland", ABC-TV Network.

. . . Three volumes of water to one of rock



RAFT-SUPPORTED PUMPS provide water for sluicing rock as it is dumped. Sluicing removes fines and assures good point-to-point rock contact.

where the main quarry is situated. At Courtright most of the dumping is from the main quarry side (left abutment) with lifts reaching as much as 150 ft in height.

All of the dumped rock is sluiced using hydraulic monitor jets. Sluicing washes the fines into voids in the rock and helps to assure point-to-point contact in the dump rock. At Wishon, volume of water is three times the volume of the dumped rock. This figure has come to be considered as fairly standard on rockfill dams. At Courtright, on the other hand, only a 2 to 1 water to rock ratio is required. The reason is twofold: The rock is exceptionally good and water supply—particularly in the late summer—is apt to be severely restricted.

• **Contracts, schedules**—Although bid at different times, both dams are being built by the same contracting organization, which is a joint venture of Morrison-Knudsen Co., Inc., Walsh Construction Co. and B. Perini & Sons, Inc. However, except for an over-all project manager and project engineer, the contractor's organization of the two jobs is being kept separate and distinct.

Construction at Wishon was started in 1955. However, by the end of the 1956 season, the foundation had been excavated, the diversion tunnel had been drilled and rock placing had begun. Construction at Courtright started a year later, rock placing began in 1957.

Wishon is required to be constructed up to El 6,495 by the end of the 1957 construction season to permit water storage for power generation in late 1958. The contractors hope to have most of the rockfill at Wishon in this year. Courtright, on the other hand, will not be completed until the end of the 1958 season.

The Kings River work is a project of the Pacific Gas & Electric Co., for whom Walter Dreyer is vice president and chief engineer. Design is under the general supervision of Carl Appleford, chief civil engineer, and J. B. Cooke, supervising engineer. Construction is under the supervision of A. J. Swank, vice president in charge of general construction. H. W. Haberkorn is manager of hydroelectric construction; Joe Pirtz, project superintendent; George Thacher, project engineer.

For Morrison-Walsh-Perini, B. L. Perkins is project manager and John F. Erdle is project engineer. H. D. Gard is general superintendent for Wishon and Boyd Christiansen is general superintendent for Courtright.

Kings River Power Is $80 Million Project

Pacific Gas & Electric Company's Kings River power development is an $80 million project located on the North Fork of the Kings River in California's high Sierras. It will bring PG&E's total capacity on the river to 296,000 kw in three power plants.

Uppermost element of the project is Courtright Dam located on Helms Creek, a tributary of the North Fork Kings River. With maximum water surface at El 8,174, Courtright has 102,000 acre-ft capacity developing from 39 sq mi. This is equivalent to 2,550 acre-ft per square mile. Obviously, that much flow doesn't develop every year; Courtright is to be used for carry-over storage and there is no power installation.

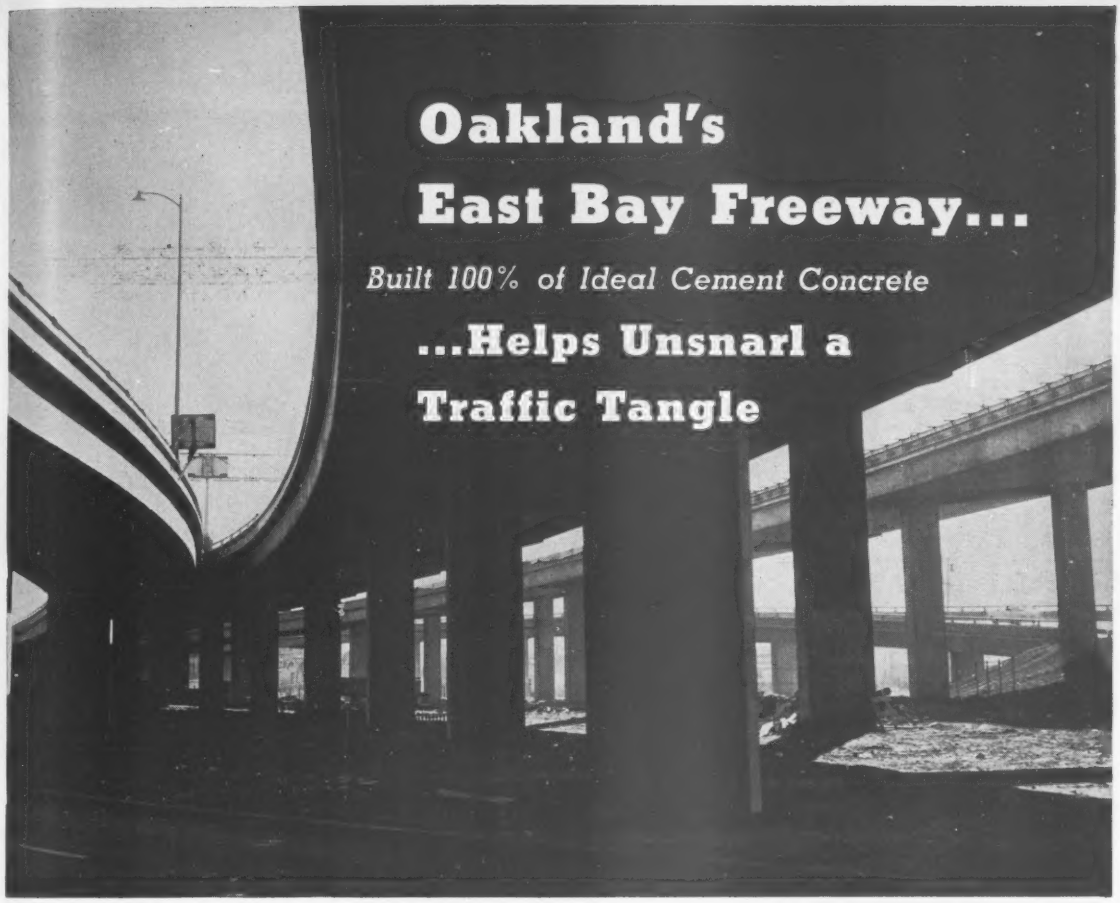
Below on the main stream of the North Fork Kings River is Wishon Dam with water surface at El 6,550. Wishon has an effective capacity of 128,000 acre-ft developing from a drainage area of 174 sq mi, and it is reasonably expected that Wishon will fill each year. For power generating purposes, water level at Wishon will be maintained at its maximum by discharges from Courtright until the latter is down to its normal carry-over storage level. In dry years, the entire storage at Courtright might be drained.

Water from Wishon will feed the new Haas Powerplant through a 6½ mi tunnel and a 4,560 ft penstock. The Haas powerhouse will have a 128,000 kw power plant located in a solid rock chamber 500 ft below ground surface—the biggest underground powerplant in the U. S. (ENR Oct. 18, 1956, p 26). The tunnel and powerhouse excavation is currently under way by a joint venture of Morrision-Knudson Co., Inc., Henry J. Kaiser Co., Macco Corp. and B. Perini & Sons, Inc. Static head on Haas Powerplant is 2,444 ft with turbine nozzles at El 4,106. Just below Haas is an existing diversion dam that feeds the existing Balch power plant. The diversion structure is being increased from 103 to 148 ft in height. Water will be carried through the existing 3½ mi tunnel to an enlarged powerhouse. Addition of two more units at Balch will bring its capacity to 126,000 kw. Head at Balch will be 2,389 ft on the new units and 10 ft less on the existing unit with nozzles of the new units at El 1708.

A contract has just been awarded to Intrusion Prepakt, Inc., for the Balch diversion dam enlargement. Another contract has been awarded to Rothschild, Raffin & Weirick for construction of the Haas and Balch plants.

Below Balch powerhouse, the existing 130 ft concrete arch diversion dam will be raised to 169 ft. This dam will divert through a 3½ mi tunnel leading to the Kings River power plant. This unit, with a normal tail water at El 910, is located in the Pine Flat Reservoir (a Corps of Engineers flood control structure) that has a maximum water surface at El 951.5. The Kings River power plant encroachment on this maximum water surface is justified from the standpoint that Pine Flat Reservoir will not fill every year. And when it does it will be drawn down as soon as possible to provide additional flood water storage. No award has been made for the Kings River plant work.

Editor's Note: This was the first of the two Kings River Project articles by ENR Editor Larry Wise. His second, on the Haas underground powerhouse, will appear in an early issue.



To solve a growing traffic problem at the east end of San Francisco's Bay Bridge, Oakland's East Bay Freeway has been developed.

This multilevel, massive concrete structure is a joint venture of Grove, Shepherd, Wilson, and Kruge, general contractors of Seattle, Washington.

Reinforced concrete was the logical construction material for the East Bay Freeway because of its pleasing appearance, first-cost economy, freedom from maintenance, and ready availability of materials regardless of the rate of use. Portland cement for the job was furnished from Ideal's Redwood City plant, strategically located on deep water directly across San Francisco Bay from the construction site.

For freeway and elevated highway construction jobs everywhere, reinforced concrete should always receive consideration wherever the elements of beauty, long-range economy, and availability of materials are important.

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IDEAL CEMENT COMPANY

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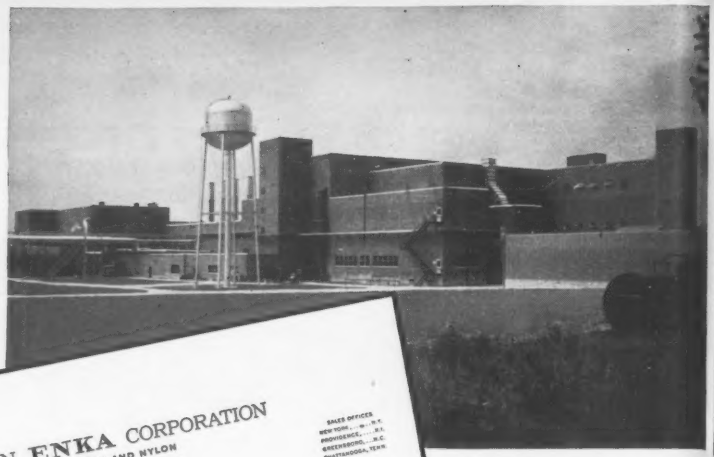


Staple fibre plant at American Enka Corp's. Lowland, Tenn., facility. H. K. Ferguson Co., Inc., New York, engineer.

AMERICAN ENKA CORPORATION
PRODUCER OF RAYON AND NYLON
ENKA, NORTH CAROLINA
TELEPHONE: NOrmal 7-1511

October 26, 1956

Bristol Steel & Iron Works, Inc.
Bristol, Virginia-Tennessee

Attention: Mr. J. G. Tilley

Dear Mr. Tilley:

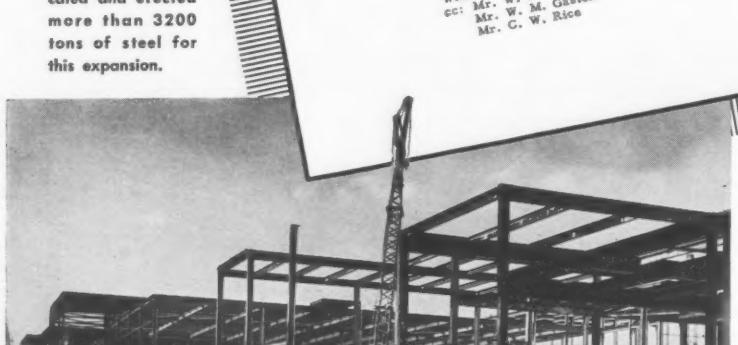
We wish to thank you and members of Bristol Steel & Iron Works for the excellent job done under your structural steel contract for our Lowland Staple Plant. Mr. Gaston, Project Engineer, and Mr. Rice, Resident Building Engineer, were particularly impressed with your engineering and fabricating shops, and feel they should be congratulated on an excellent job of design and fabrication as there were very few misfits in the field. They also feel that Mr. Settles, Erection Superintendent, should be especially congratulated for his co-operation and efforts in maintaining a tight schedule under adverse weather conditions.

The co-operation and friendly relationships, as well as excellence of job, are certainly appreciated by American Enka Corporation.

Very truly yours,
AMERICAN ENKA CORPORATION
A. L. Jackson
A. L. Jackson
Director of Engineering

WMG:EB
cc: Mr. W. F. P. Coxe
Mr. W. M. Gaston
Mr. C. W. Rice

Bristol Steel fabricated and erected more than 3200 tons of steel for this expansion.



BRISTOL STEEL AND IRON WORKS, Inc.

Dependable Steel Service
Since 1908

Bristol, Virginia

Simplified Spreader Rig Aids in Control of Ice

A sand and cinder spreader for ice control has been added to the Henderson spreader body line.

Designed as an addition to the firm's chief body line, the spreader has adjustable deflectors around the fan to allow the operator to spread from 8 ft to 32 ft wide or wider, depending on the material being used. Rear gate control within easy reach of the driver saves operating time, the manufacturer claims.

Optional features include a multiple disk oil clutch, two-speed transmission, conveyor chain oiler, hopper screen and auxiliary engine drive. HENDERSON MANUFACTURING CO., CEDAR RAPIDS, IOWA.

Illuminated Tracing Unit Is Made Portable

An illuminated portable tracing unit, the Porta-Trace, is now offered by Ozalid.

In the drafting room, it is thin enough to be slipped under a string type parallel rule on a standard size drafting board and its size permits use under a standard straight edge or drafting machine.

Rubber feet hold it in position even when shifted at various angles.

The new tracing unit also can be used for opaquing, retouching, stripping-in and viewing transparencies. For reproduction, it can facilitate preparation of bristol board originals, multilith paper originals, mimeographed stencils, color separations, and visual-aid transparencies.

The Porta-Trace has a shatterproof opal plexiglas top which gives suitable light diffusion with a minimum of glare. Its flush top permits use with drawings that are larger than the unit. It is available with tracing surfaces from 10 x 17 in. to 23 x 36 in. OZALID DIV., GENERAL ANILINE AND FILM CORP., 6 CORLISS LANE, JOHNSON CITY, N. Y.

Viewing is Made Easy With Long-Print Holder

A long-print holder for viewing blueprints, drawings, photos and maps up to 40 ft or more in length, is constructed of aluminum and plastic. The Roll-O-Print Model A can be secured to walls with screws and brackets or mounted on a flat surface with clamps. A plywood or masonite backing may be attached to the center frame for marking on prints.

The prints are rolled flat on two vertical rollers and moved into view by turning either of two controls located at the base of the device.

Standard size accommodates prints 36 in. wide, 40 ft or more in length and can be supplied for wider prints on request.

The Model A sells for $80, and the Model B, which clamps upon horizontal surfaces only, is priced at $55. AQUA SPORTSMAN, INC., 2518 LESLIE AVE., CINCINNATI 12, OHIO.

Planimeter Sets to Zero At Touch of a Button

A planimeter that sets to zero automatically and a new line of drawing instruments have been announced by Fennel Instrument Corp. of America.

The instrument line is available in either sets or single pieces. The planimeter is of the optical compensating type. The zero-setter flicks to zero at the touch of a button, according to the manufacturer. The planimeter has an optical tracing lens, instead of a point, and a dust-tight carriage. The drawing instruments and planimeters are made by the German firm of Maho. FENNEL INSTRUMENT CORP. OF AMERICA, 45-22 PEARSON ST., L. I. C. 1, N. Y.

Prefab Railing Is Assembled by Bolts

No welding or riveting is required for installation of a new bridge railing made up of steel box channel rails and malleable iron intermediate and end posts. The posts are connected to the bridge parapet by four anchor bolts set in the concrete and the rails are fastened to the posts by either set screws or a bolt and wedge type fastener from the rear of the post.

The bridge railing is available in two standard types—open and closed. In the open type, the box channel is set in a recess in the post and held in place by a bolt and wedge-type fastener. The open type railing provides a continuous rail face on the roadside of the railing.

In the closed type, the channel is held in an opening in the body of the post. A set screw secures the channel to the post.

Box channel rails are furnished in any length from 7 to 20 ft. Intermediate posts are spaced on 10 ft centers. The galvanized 2 x 5 rails are formed from $\frac{1}{8}$ in. steel sheet. Each channel is fitted with an 8$\frac{1}{2}$ in. steel sleeve at one end to form the male connection. The sleeve is inserted into the next section to connect the rails in the field.

One, two and three rail designs are available for both the open and closed type railings. BETHLEHEM STEEL CO., BETHLEHEM, PA.

MIXER MAINTENANCE HI

. . . so San-Vel joins the big switch to Worthington Hi-Up's

One of the leading ready-mix operators in the greater Boston area, Al Roy, president of San-Vel Concrete Corporation has this to say:

"It takes modern methods, up-to-date equipment, and the latest materials handling practices to grow in this business. That's why we recently opened a brand new plant in Littleton, Mass.," says Mr. Roy.

An important part of San-Vel's new streamlined operation is an up-to-date fleet of 28 truck mixers including 13 Worthington Hi-Up's. When San-Vel decided to buy four more last December, they checked the performance of their present fleet; the maintenance records on the

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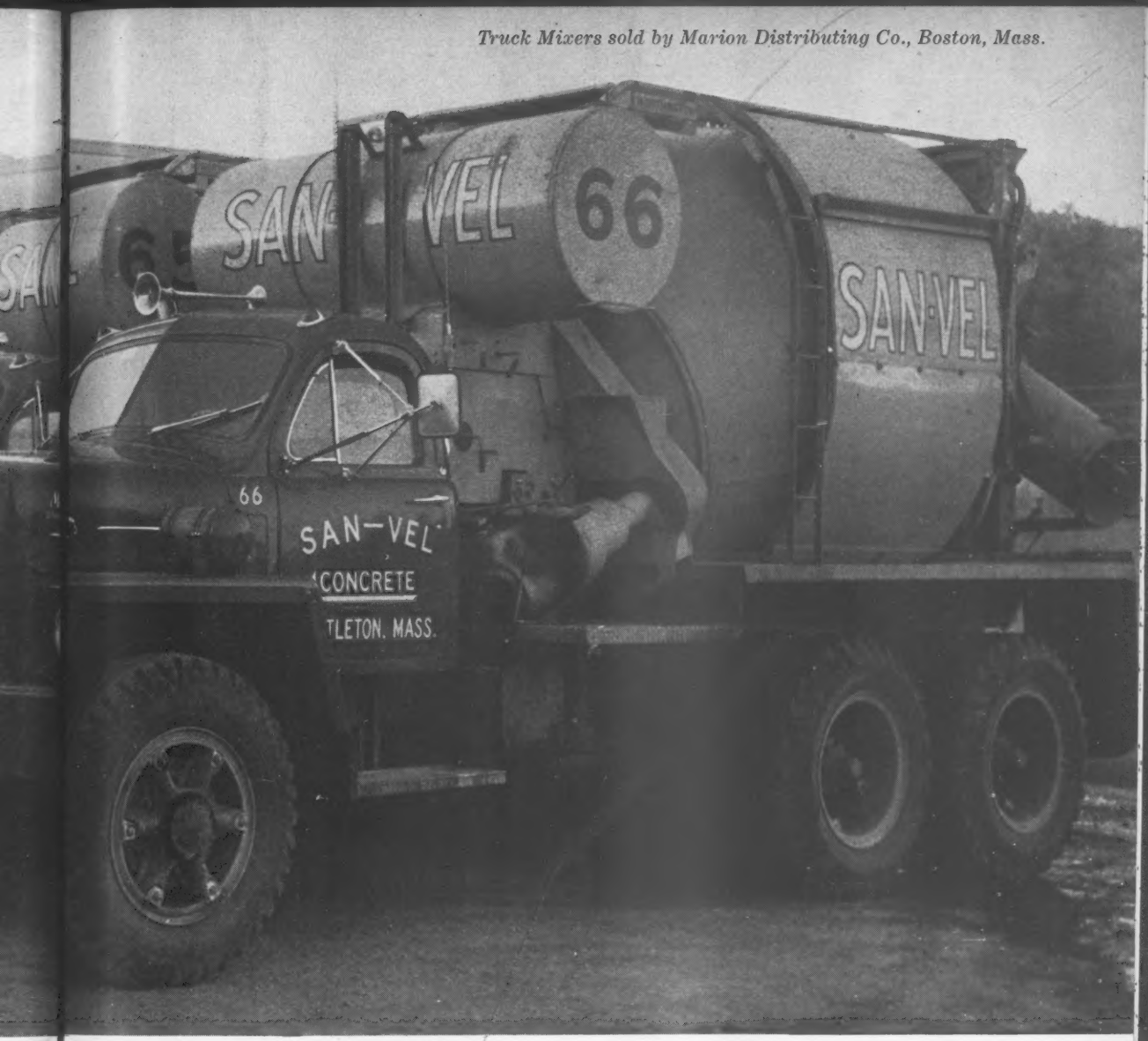
Truck Mixers sold by Marion Distributing Co., Boston, Mass.



E HITS NEW LOW...

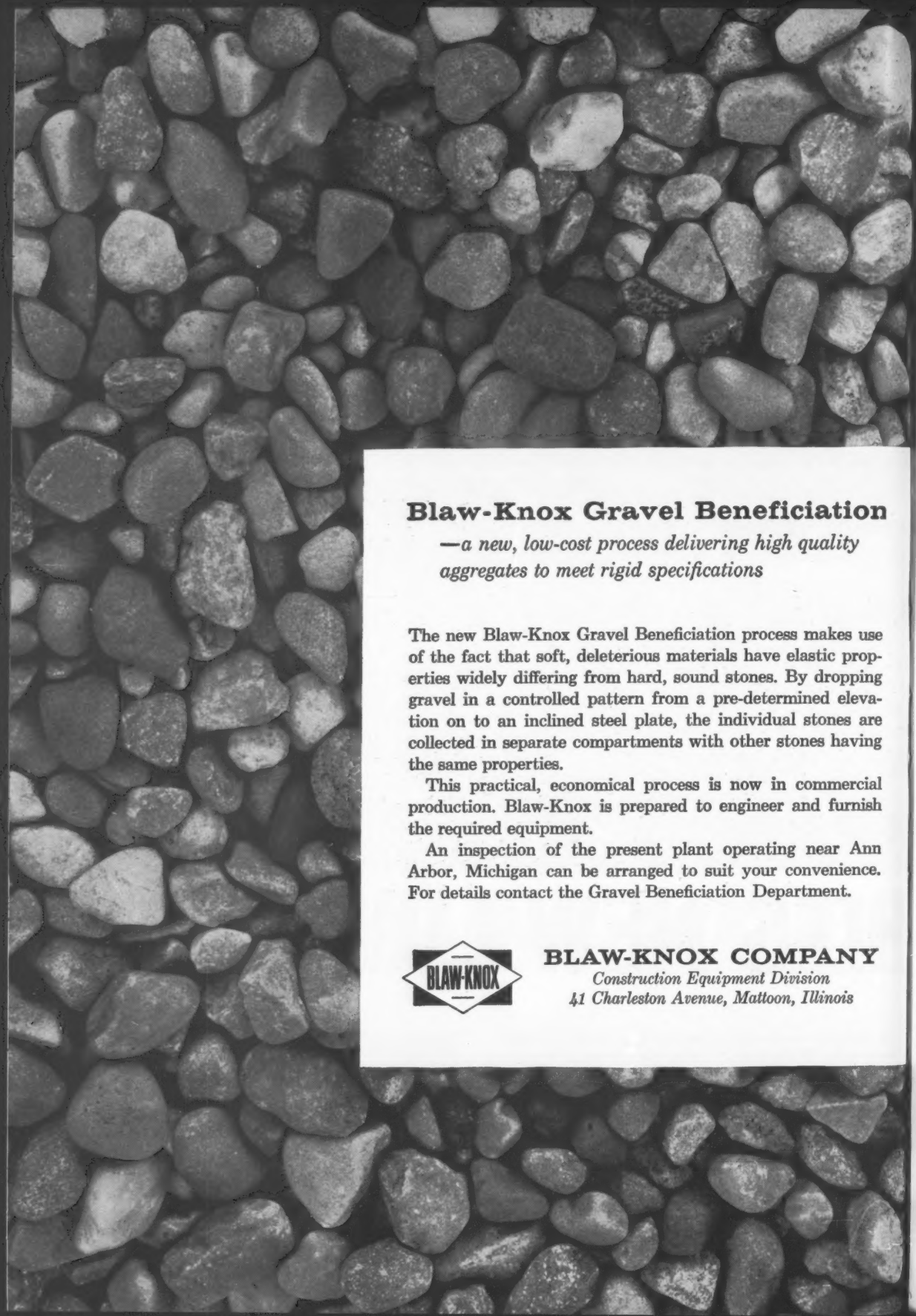
Worthington units were so satisfactory that they bought four more Hi-Up's.

Like San-Vel, more and more fleet operators are deciding on the husky Hi-Up because of its easy handling and low maintenance. Each year since 1952 substantially more Worthington truck mixers have been sold than the year before.

Isn't it time for you to consider switching to Worthington, too? Ask your Worthington distributor for eye-opening "Mixerama" demonstration. Or write to Section R-72, Worthington Corporation, Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Toronto, Ont.

THE BIG SWITCH TO WORTHINGTON. *Every year since 1952, ready mix operators have chosen more Worthington Hi-Up's than the year before.* R.7.2

WORTHINGTON



Blaw-Knox Gravel Beneficiation

—a new, low-cost process delivering high quality aggregates to meet rigid specifications

The new Blaw-Knox Gravel Beneficiation process makes use of the fact that soft, deleterious materials have elastic properties widely differing from hard, sound stones. By dropping gravel in a controlled pattern from a pre-determined elevation on to an inclined steel plate, the individual stones are collected in separate compartments with other stones having the same properties.

This practical, economical process is now in commercial production. Blaw-Knox is prepared to engineer and furnish the required equipment.

An inspection of the present plant operating near Ann Arbor, Michigan can be arranged to suit your convenience. For details contact the Gravel Beneficiation Department.

BLAW-KNOX

BLAW-KNOX COMPANY
Construction Equipment Division
41 Charleston Avenue, Mattoon, Illinois

Farley Gannett Turns Over the Reins

Back in August, 1915, the 35-year-old chief engineer of the Water Supply Commission of Pennsylvania quit that job, which he had held for 10 years, and set himself up as a consulting engineer. Now at the age of 77, with his firm ranking as one of the largest and best in the country and with a record of high professional achievement to his credit, Farley Gannett of Harrisburg, Pa., has decided to slow down. With the statement that, "Although I didn't like to, I felt it necessary to let others carry the load", Mr. Gannett engineered some changes in his organization. Beyond the brief public announcement, here is what has happened:

Legally, a reorganization has taken place in Gannett Fleming Corddry & Carpenter, Inc., and in the associated partnership of Gannett Fleming Corddry & Carpenter, which handles engineering work in states where corporations are not permitted to practice engineering. Actually, both firms continue as formerly, but with Mr. Gannett absent from the partnership and now chairman of the board instead of president of the corporation.

Samuel W. Fleming, Jr., who since 1916 has been vice president and treasurer, stays as treasurer and becomes vice chairman. W. Howard Corddry, who was senior vice president and chief engineer, becomes president. J. D. Carpenter becomes senior vice president. John R. Dietz continues as head of the firm's highway, bridge and traffic division, and as a vice president. C. H. Kressler, for many years head of the valuation division, becomes a vice president. Ralph Foster continues as vice president and office manager, and Bryan Eastman, head of the construction division continues as vice president. E. T. Baker, former chief engineer, Michigan Turnpike Commission, is directing the firm's jobs on the interstate highway system.

Gannett Fleming Corddry & Carpenter, Inc., has a staff of over 500 people. In Harrisburg, its home office, the firm occupies four buildings, two owned and two rented. It has a Philadelphia office headed by Charles W. Zwally and a Pittsburgh office under the direction of Joseph M. Kantner.

The hydraulic, valuation, construction and sanitary divisions together produce about half of the firm's volume of business, and the highway and bridge division the other half. Among the first consultants to use photogrammetry for locating highways on a large scale (10 years ago on the 140 mile eastern extension of the Pennsylvania Turnpike) the firm continues to rely on the method not only for roads, but for dam and reservoir surveys and for sewage system designs. Two years ago, too, it began to supplement photogrammetry with electronic computer operations, and now has just finished remodeling a building at Harrisburg which will be devoted exclusively to electronic equipment.

Farley Gannett, in deciding to "let others carry the load", apparently chose a good time to do it, because he says, "It looks as if we are having in 1957 one of our best years."

C. H. Topping Elected Building Research Head

Charles H. Topping, senior architectural and civil consultant for E. I. du Pont de Nemours & Co., Wilmington, has been elected president of the Building Research Institute for the 1957-1958 year.

In his acceptance speech, Mr. Topping pointed out, "The Building Research Institute is the only industry-wide building research program in the world today supported entirely by private funds. As a part of the National Academy of Science-National Research Council, BRI has the impartiality necessary to promote basic and applied research into better building for all."

Alluding to the 89% growth of the organization in the past year Mr. Topping said: "This growth reflects the building industry belief that private enterprise is fully equipped to deliver any product that the public demands . . ." and that "the building industry, a vast and widespread part of the American economy, is alert to the fact that research is the certain answer to better construction materials and research."

New Materials Testing Equipment Firm Formed

A new firm, known as TESTlab Corp., has been formed to manufacture and distribute lab and field equipment for the testing of soils, bituminous and concrete materials. It features the Karol-Warner line of testing machines with electronic recording mechanisms provided by the Tinius Olsen Testing Machine Co.

The new company is headed by J. M. Woldenberg in Chicago, with M. D. Morris as vice president in charge of the New York office.

Careers

Business

Ivan A. Bickelhaupt has been elected president of the Mount Vernon Co., Mount Vernon, Ohio, succeeding **Clyde G. Conley,** who becomes chairman of the Executive Committee. Mr. Bickelhaupt, a civil engineering graduate of the University of Wisconsin, joins Mount Vernon from the Pittsburgh-Des Moines Steel Co., with which he has been associated from 1914 to 1928 and again from 1951 to date. During World War II he served six years as a member of the Navy's Civil Engineer Corps.

J. W. Behee, distribution system engineer for the Wichita Walter Co.,

BUCK

puts Concrete where YOU need it — when YOU need it

Avoid costly down-time. The Portable Buck Hoistower equipped with the ⅝ cu. yd. clean-dumping concrete bucket actually moves 97 yds. of concrete . . . and more . . . in three hours.

FAST? In 23 minutes—from towing to working—your first load of concrete is up.

STRONG? With the *new 25 hp. engine* a 2500 lb. load can be hoisted 100 ft.—and then some!

****VERSATILE?*** With the *new Buck Poop Deck* accessory—built to fit any old or new model Buck Hoistower—contractors can hoist loads of masonry and other materials in between concrete loads without changing the platform.

****NEW BUCK POOP DECK ACCESSORY***

Whether it be the platform, concrete bucket, Buck Poop Deck or Chicago Boom, depend on Buck.

For free literature—and to action test this machine—see any of the 73 Buck dealers or write direct.

BUCK EQUIPMENT CORPORATION

720-E ANDERSON FERRY ROAD, CINCINNATI 38, OHIO

In Canada: London Concrete Machinery Company London, Ontario

In England: Millars Machinery Co., Ltd. London, E.C. 2.

succeeds, effective Oct. 1, **J. H. Montgomery** as manager of the North Little Rock Water Co., who retires after being with the company since 1936.

Charles J. Henry, Jr., and **Dewey W. Young,** civil engineers, have been appointed to the staff of the Oak Ridge Y-12 Plant, an atomic energy installation operated by a division of Union Carbide Corp.

Charles I. Mansur, former chief of the geology, soils and materials branch of the Mississippi River Commission, has joined the Independent Wellpoint Corp., Baton Rouge, La., as vice president and chief engineer.

Leonard Bushnell, who served for five years as Santa Clara County, Calif., engineer, has opened his own engineering office at San Jose. Prior to his service for the county, Mr. Bushnell was an engineer for the State Bridge Department, the Corps of Engineers and Great Northern Railway Co.

Henry C. Helland, Montana Deputy State Highway Engineer, an employee of the department for 20 years, left state service this month to join Western Engineers, Inc., of Salt Lake City, as engineer in charge of the Utah territory.

R. J. McMullin, general manager of the Salt River Valley Water Users Association, is appointed general manager of the Salt River Project at Phoenix. He succeeds **Stanley A. Ward,** who resigns to join Bechtel Corp.

Gene M. Nordby is made program director for engineering sciences, National Science Foundation, replacing **Edward E. Litkenhous,** who returns to the faculty of Vanderbilt University.

Harold E. Spickard, recently retired as chief of the real estate division of the Los Angeles District, Corps of Engineers, has established an office as consulting engineer in Newport Beach, Calif. During World War II, he was on active duty with the Corps and headed up engineering work on the Pan American Military Highway from the Mexico-Guatemala border to Panama.

W. G. Palmer, formerly chief engineer of Mannix Gill, Ltd., Calgary, Canada, has been named vice president for engineering, as one of a number of organizational changes. Other staff additions include: **Edward L. Jones,** formerly with C. F. Braun & Co. of Alhambra, Calif., becomes chief engineer; **W. F. Sharon,** formerly president of Sparkling Tank & Manufacturing Co., Toronto, and a well-known figure in Canadian steel and engineering circles, has been named a director and executive vice president; **P. J. Soukup,** formerly general manager, has been named vice president in charge of construction.

Central McConnaughay Laboratory at Lafayette, Indiana

For Fast, Dependable Service on Emulsified Asphalt . . . *Check These Convenient Sources*

FROM Canada to the Gulf . . . from the Atlantic to Iowa . . . you can be sure of fast, dependable service on asphalt emulsions and mixes by calling any of the McConnaughay Licensees listed at right. This co-ordinated group, guided by a central organization, is made up of experienced manufacturers and contractors who fully understand your problems, offer extensive engineering and testing services on paving materials and mixtures as well as on-the-job advice. Take advantage of this exceptional service. If you are figuring on highway, street, or general paving, get in touch with your nearest McConnaughay Licensee or contact the main office.

SPECIFICATIONS OF THESE COLD-MIX PROCESSES AVAILABLE ON REQUEST

1—Penetration Macadam, 2—Open-Graded Plant Mix, 3—Open-Graded Road Mix, 4—Dense-Graded Plant Mix, 5—Dense-Graded Road Mix, 6—Mat Coat, 7—Seal Coat, 8—Sand Mix, 9—Sand Honing, 10—Patching, 11—Mastic-Mix, 12—Driveway Construction.

McCONNAUGHAY LICENSEES Operating K. E. McConnaughay Emulsified Asphalt Plants

FLORIDA
E. A. Mariani—Emulsified Asphalt
Hooker's Point, Tampa

ILLINOIS
Emulsions, Inc.—*Lawrenceville*

INDIANA
Bituminous Materials Co.
P. O. Box 267, *Terre Haute*

Wabash Valley Asphalt Co.
Terre Haute

Walsh & Kelly
R. R. No. 2, *Gary*

Brookman Construction Co.
17th & Gharkey Sts., *Muncie*

Fauber Construction Co.
Lafayette

Asphalt Materials & Construction, Inc.
960 East 22nd, *Indianapolis 2*

Ready-Mix Asphalt, Inc.
P. O. Box 882, *Fort Wayne 6*

IOWA
Bituminous Materials & Supply Co.
409 Fifth Street, *West Des Moines*
Plants: *Spirit Lake, LeMars, Carroll, Algona, Lehigh, Davenport*

KENTUCKY
Emulsified Asphalt Co.—*Kuttawa*

LOUISIANA
Bituminous Materials Co.—*Metairie*
Serving Alabama, Mississippi, and Louisiana

MAINE
Doherty and Swearingen Co.
53 Main St., *Yarmouth*

MASSACHUSETTS
James Huggins & Sons, Inc.
Medford & Commercial, *Malden 48*

MICHIGAN
Bituminous Materials Co.
318 Atlantic St., *Bay City*

Bituminous Materials Co.—*Escanaba*

Bituminous Materials Co.
416 S. Water St., *Jackson*

NEW YORK
Knight Paving Products, Inc.
1655 Union Rd., *Gardenville*

Knight Paving Products, Inc.
Vine Street, *Ithaca*

Knight Paving Products, Inc.
1980 East Avenue, *Rochester 10*

Knight-Bitumen Corp.—*Watertown*

Albany Asphalt & Aggregates
75 State St., *Albany*

Bimasco Pavements, Inc.
Roslyn Asphalt & Materials Co.
Landing Road, *Roslyn, L. I.*

SOUTH CAROLINA
Seaco, Incorporated
2700 Industrial Drive, *Columbia*

TENNESSEE
Asphalt Products Co., Inc.
Powell Ave., *Nashville 4*

CANADA
T. J. Pounder & Co., Ltd.
1474 Wall St., *Winnipeg, Man.*

Eastern Representative:
John A. Dow
157 Church St., *New Haven 10, Conn.*

K. E. McCONNAUGHAY LAFAYETTE INDIANA

EMULSIFIED ASPHALT *PLANTS AND PROCESSES*

the one

SOLUTION

for all these construction problems...

✓ **CRACKS IN CONCRETE SLABS AND PATIO** — Thompson's Water Seal helps prevent cracks, stains and dusting because it penetrates deep for hard water-repellent surfaces that are smooth and evenly cured.

✓ **SEEPAGE IN CONCRETE BLOCKS** — Thompson's Water Seal puts a deep-penetrating seal into concrete blocks to help maintain texture and color and to protect for 5 years or more against moisture seepage, leakage, stains, paint blistering and peeling.

✓ **JOB FOULED UP BY MOISTURE** — unlike surface-coaters, clear, colorless Thompson's Water Seal gives all porous materials a deep-penetrating seal for 5 years or more against moisture, alkalies, salt water, many organic acids — particularly valuable for door and window sections, masonry, plywood, basements, retaining walls, stucco.

✓ **EXTERIOR SIDING WARPS AND CRACKS** — Thompson's Water Seal penetrates deep into wood fibres — gives exposed structures protection for 5 years or more against weather and moisture that often cause warping, swelling, checking and grain-raising right on the job.

NEW BOOKLET WITH COMPLETE SPECIFICATIONS —

contains Thompson's Water Seal end-use specifications for porous materials in building and maintenance applications... and for TWS use with paints, floor hardeners and Thompson's Waterproofing Redwood Stain.

See your dealer for free copies or write to:

Thompson's — MANUFACTURERS OF FINE PROTECTIVE CHEMICALS SINCE 1929

E. A. THOMPSON CO., INC. • WESTERN MERCHANDISE MART • SAN FRANCISCO 3, CALIFORNIA
San Francisco · Los Angeles · San Diego · Portland · Seattle · Dallas · Houston · St. Louis · St. Paul · Philadelphia · Denver · Detroit

Obituaries

Charles V. Sheldon, 90, retired civil engineer and surveyor, died July 21 in Milwaukee. Mr. Sheldon served as an engineer with the Milwaukee Road for 40 years before his retirement in 1925, but continued active as a private surveyor for many years.

Arthur M. Field, 66, chief engineer of the Charleston, S. C., Development Board and a leader of the area's industrial growth, died Aug. 2. He was credited with conceiving the Bushy Park Industrial Water Project and also was responsible for establishment of Stark Industrial Park—another successful project that brought diversified industry to Charleston. Mr. Field graduated from Cornell University in 1914 with a civil engineering degree.

James S. Brown, 60, a partner in the general contracting firm of Brown-Schrepferman & Co. of Denver, died July 23 in Denver. Mr. Brown was a 1921 civil engineering graduate of the University of Colorado, and his firm was widely known in the Rocky Mountain area.

Victor B. Higgins, 67, former president of the Carolinas Branch, Associated General Contractors of America, and a national AGC director, died July 28. A graduate of Clemson College, he took an active part in state and local affairs and served one term as mayor pro-tem of Greensboro and two terms as a member of the Greensboro City Council.

Leo S. Hillebrand, 70, vice president and treasurer of the Toledo contracting firm of A. Bentley & Sons Co., died July 3. Mr. Hillebrand was associated with the firm for more than 53 years, during which time the organization built many of Toledo's major office structures.

J. L. Cone, 66, president of Cone Brothers Contracting Co. of Tampa, died in Tampa July 27. Widely known as a paving contractor, Mr. Cone started the firm with a brother, W. Louis Cone, in 1925.

B. Thomas Gialdini, 58, consulting engineer, died July 15 in Milwaukee. Mr. Gialdini was a graduate of the University of Cincinnati.

Charles H. Young, 67, retired contractor, who had been vice president of Walsh Construction Co., New York and general manager of Walsh Canadian Construction Co., Toronto died last month in St Paul, Minn., where he lived.

BOLTED CONSTRUCTION IS "GOING UP" EVERYWHERE

in CHICAGO...

better than 60% of "tall steel" jobs being connected with HIGH STRENGTH BOLTS

R B&W

112th year

Plants at: Port Chester, N. Y.; Coraopolis, Pa.; Rock Falls, Ill.; Los Angeles, Calif. **Additional sales offices at:** Ardmore (Phila.), Pa.; Pittsburgh; Detroit; Chicago; Dallas; San Francisco. **Sales agents at:** Milwaukee; New Orleans; Denver, Fargo. **Distributors** from coast to coast.

MAJOR cities everywhere point up the phenomenal progress in erecting steel frames with high strength bolts. Report from Chicago shows that the bolts are replacing rivets in 60 to 70% of the new towering steel construction jobs.

Little wonder. Bolted connections benefit everybody. Constructors cut costs and save erection time, the ironworker finds them safer to install, the community is spared riveting noise, the owner gets a better structure.

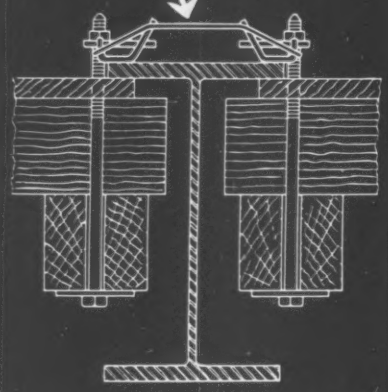
RB&W...largest independent producer of high strength bolts for construction

Used in place of rivets, as approved by AISC, RB&W high tensile bolts become the strong points of a structural connection. Conforming to ASTM specification A325, they develop optimum shear and tensile strength in the connection for all types of loads. They're superior for dynamic loads, stay permanently tight where rivets loosen.

RB&W high strength bolts give erectors the quality they need, the easy assembly they want. Cleanly, uniformly threaded, they finger-tighten easily prior to wrench application.

Send for Bulletin HS-1 (as many as you need) which gives working information and helpful hints. Or see RB&W Catalog in Sweets Industrial Construction File. Russell, Burdsall & Ward Bolt and Nut Company, Port Chester, N. Y.

Faster Adjustment from TOP of Deck



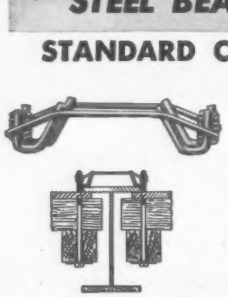
TOTAL SAFE LOAD ON BOTH COIL BOLTS IS 10,000 LBS., OR 5,000 LBS. PER BOLT

..WHEN HANGING FORMS WITH SUPERIOR PLATE HANGER FRAMES

With Superior Plate Hanger Frames the installation and necessary adjustment to bring the deck forms tight against the flange are from *above* the deck. Coil Bolts are passed through and secured from above with coil nuts. Bolts are easily removed without binding because, (1) nuts are square and will not turn; (2) embedment of the bolts in the concrete is at a minimum since the plate is only ½" above the flange.

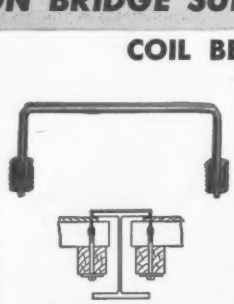
FOUR OTHER SUPERIOR WAYS TO HANG FORMS FROM STEEL BEAMS AND GIRDERS ON BRIDGE SUPERSTRUCTURES

STANDARD COIL HANGER FRAME



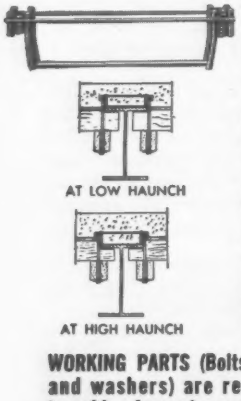
When hanging forms where specifications do not permit any hanger wire to be exposed after stripping, use Superior *Standard* Hanger Frames. Detail at left shows their use with double ledgers, ½" coil bolts, and flat washers. Total safe load on both bolts for Type 10M is 10,000 lbs., or 5,000 lbs. per bolt. For Type 6M, total safe load on both bolts is 6,000 lbs., or 3,000 lbs. per bolt.

COIL BEAM SADDLE



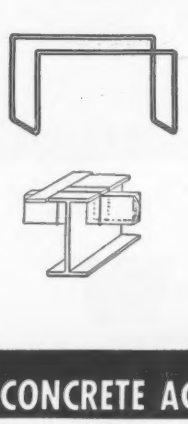
On jobs where hanger wires may be cut after stripping the forms, use Superior Coil Beam Saddles. The Coil Bolts allow for any variation in lumber and flange thickness and tightening the bolts pulls the forms tightly against the flanges. Forms are easily stripped. Safe load is 6,000 lbs. per saddle, or 3,000 lbs. for each ½" Coil Bolt. Coil Beam Saddles are also furnished for ¾" and 1" bolts.

SPECIAL HANGER FRAME



The design of certain bridge superstructures allows for the permanent deflection of the beams or girders due to the pre-calculated dead load. This deflection is compensated by a concrete haunch of varying depth on the upper flange. Superior *Special* Coil Hanger Frames were developed to meet this field condition, at the same time avoiding any exposed hanger wire. The extent to which the ½" coil Bolts are threaded into the coils allows for these varying haunch depths from maximum to zero. (See detail). Total safe load per frame is 10,000 lbs., or 5,000 lbs. per ½" bolt.

WIRE BEAM SADDLE



Wire Beam Saddles are used to hang centering joists from structural steel beams when the beams are not fireproofed with concrete. On non-fireproofed structures the load is determined by the allowable spacing of centering joists rather than the capacity of the hanger. Available in three gauges and sizes as required. Will carry safely, total loads of 2,500 lbs. to 6,000 lbs. Layouts and estimates will be sent upon receipt of plans or quantities. No obligation.

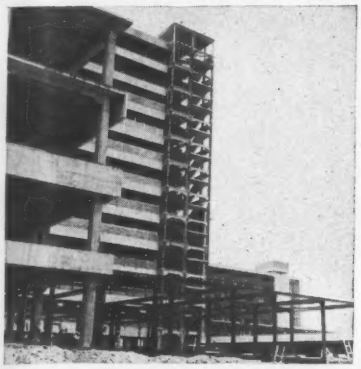
WORKING PARTS (Bolts and washers) are returnable. Layouts and estimates for Superior Hangers are available without obligation.

SUPERIOR CONCRETE ACCESSORIES, INC.

9301 King St., Franklin Park, Ill.
(A Suburb of Chicago)

New York Office
1775 Broadway, New York 19, N. Y.

Pacific Coast Plant
2100 Williams St., San Leandro, Calif.



Mexico to Open Huge Medical Center in 1958

Mexico City's $10 million medical center, comprising 12 multi-story buildings containing a combined floor space of 1.73 million sq ft, is being rushed to completion. Started in 1954, the project is expected to be completed by late 1958—before the incumbent Mexican President, Adolfo Ruiz Cortines, leaves office.

At present, none of the buildings are completed and foundation work is yet to start for two or three of the buildings. Main structures comprising the center include surgery, emergency, cancerology, malnutrition, maternity, respiratory disorders, nurse quarters and general office buildings.

Many of the design features of the structures are aimed at overcoming bad soil conditions that have caused buildings in the city to settle at rates up to 16 in. a year. Structural frames for the buildings are either of reinforced concrete or steel.

The buildings are faced with lightweight concrete panels covered with decorative mosaic tile. The panels are 43 sq ft in area and weigh 550 lb. The panels are formed on the site hoisted and welded to supporting steel frames.

Excavation for foundations was done in strips. Foundation work was done in the portion excavated while overburden on the remainder of the site kept adjacent ground from collapsing. Ground water was found at a depth of 8 ft during excavation and required continuous pumping during construction.

The 13 story emergency building, one of the first to be started in 1954, settled unevenly and developed a slight list before it was even topped out. Resting on wooden piles, the building was brought back to plumb by use of hydraulic jacks and the insertion of steel sections between the pile caps and column base plates. All foundations have been constructed so that adjustable concrete piles may be added later if necessary.

Most buildings are built in the form of a T as a protection against tremors that shake the city's subsoil. Branches of the T are joined at each floor by bridges. One end of the bridge is anchored in the base of the T. The other end of the bridge is free to move, since it is supported by an I beam fixed in a branch section of the building and encased by hollow tubing of the bridge. In this way elements of the building can settle unevenly or draw together as much as 16 in. The medical center will be financed by receipts from the Mexican governments' national lottery.

Enrique Yanez is the architect in charge of the project.

U. S. to Loan $2.6 Million For Bolivian Airport Work

The Bolivian Department of Civil Aeronautics has announced that the U. S. will supply $2.6 million to finish up work on the Bolivian National Airport at El Alto.

At the moment, the construction is virtually at a standstill, because of lack of funds to pay for materials and equipment now standing idle on the docks at the port of Arica.

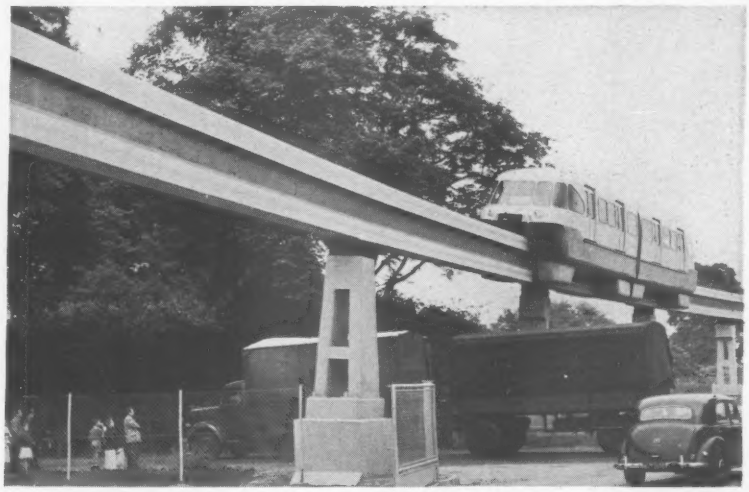
Work Is Slated to Start On Largest Nuclear Plant

Great Britain has ordered construction to start on a $104 million, 320,000 kw capacity nuclear power station at Hunterston, Ayrshire, in Scotland. It will be the largest nuclear plant in the world.

The construction start had been delayed because of objections by trustees of the Hunterston estate, which has been in the keeping of the Hunter family for 600 years. Of the estate's 1,000 acres, 110 will be taken.

The power plant itself will occupy 360,000 sq ft, making it one of the largest industrial buildings in Britain. It will utilize between 18 and 24 million gal of water an hour. Housing two atomic reactors, the tallest buildings will be 202 ft high and about 600 ft long.

The Hunterston station will be constructed by General Electric Co. and Simon-Carves group, under the aegis of the South of Scotland Electricity Board.



Top-Riding Monorail Gets Full Scale Test

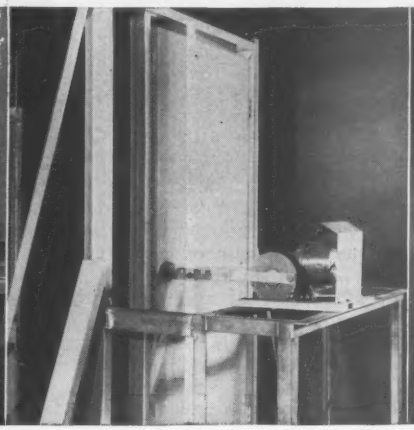
A full-size, two-coach "Alweg" monorail train undergoes tests on a 1.25 mi concrete rail near Cologne, Germany. The "rail" is a 50-ft-long concrete beam, which the promoters say can be manufactured quickly and assembled in an hour. The coach itself hugs the concrete rail through a series of pneumatic rubber tires, which are claimed to make the operation safe and nearly noiseless. Speeds of up to 50 mph are claimed to have been reached on this test section.

The "Alweg" type of monorail is a development of Alweg-Forschung, Inc., of Cologne, a firm backed by Swedish millionaire Axel Wenner-Gren, who has said his organization has spent more than $5 million on the project.

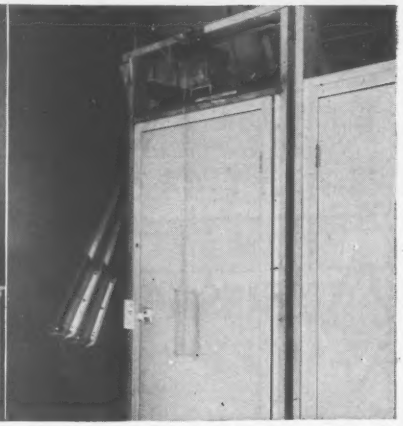
Beauty

and the Beasts

Twist! Here the "beast" (a jack) forces one corner of the door off the table until the insides begin to snap. The Fenestra Door took 240 lbs. of twisting pressure without damage! One *competitive* door snapped at 90 lbs., another at 130.



Slam! Here the "beast" (a door slamming machine) has already slammed the Fenestra Door 382,000 times! No damage to door or hinges. *Competitive* doors shook loose hours before.



Bang! Here the "beast" (a pendulum weight with a force equal to 1200 inch-pounds) crashed against this door 1000 times without even leaving a *mark*! One *competitive* door gave way after 50 blows, another after 100.

New Fenestra 1⅜" Hollow Metal Flush Doors outlast all others in torture tests!

Beneath the sleek "seamless" beauty of the new 1⅜" Fenestra® Hollow Metal Flush Door is a rigid, rugged strength that withstood the toughest torture tests shown here.

This strength comes from Fenestra's exclusive multi-rib reinforcement.

And here are three other important extras:

1. You buy a *complete package*: door, frame, hardware. All fitted at the factory for fast, economical erection.

2. Fenestra's famous Lock Miter joint frames provide extra strength and smooth finished appearance.

3. You buy these custom-quality doors at *stock* prices. Fast delivery when you need it is standard. Mail the coupon for complete information.

Fenestra INCORPORATED

HOLLOW METAL DOOR-FRAME-HARDWARE UNITS

YOUR SINGLE SOURCE OF SUPPLY FOR DOORS • WINDOWS • BUILDING PANELS

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Please send me complete information on New Fenestra 1⅜" Hollow Metal Flush Door-Frame-Hardware Units.

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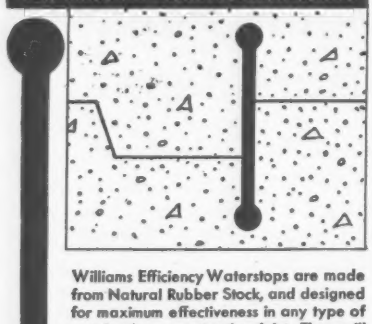
1908 Railway Exchange Bldg.
ST. LOUIS 1, MO.

RUBBER
WATERSTOPS
FOR MASONRY CONSTRUCTION JOINTS



Williams Efficiency Waterstops are made from Natural Rubber Stock, and designed for maximum effectiveness in any type of cast-in-place construction joint. They will bend around corners—will not tear from shear action. Tensile Test: 3990 lbs.; Elongation Test: 650%. Available in rolls up to 80 feet in length. Field splicing is simple. Williams Waterstops can also be furnished in Neoprene for industrial uses where resistance to oil and other injurious wastes is desirable. These highly effective Waterstops are now in use in hundreds of industrial plants, commercial and public buildings throughout the country.

See Sweet's, or Write for Information.

WILLIAMS
EQUIPMENT and SUPPLY CO.
6001 E. McNichols Rd., Detroit 12, Mich.

Continuous T-Beam Grade Separation in Michigan

This $94,915 reinforced concrete continuous T-beam grade separation carrying McCain Road over relocated M-60 near Jackson City, Mich., drew seven bids. Michigan State Highway Department awarded contract to Argersinger-Morse Construction Co., Ann Arbor, Mich., on a low bid 8.4% under the second low and 22.4% under the high bid.

The substructure consists of two reinforced concrete cantilever abutments, 11′ 6″ high from bottom of footing to crown of roadway. They are supported on treated timber piles. Three reinforced concrete column and girder type piers are 29 ft high from bottom of footing to crown of roadway. The structure is on a 700 ft vertical curve. The angle of crossing is 87° 11′ 37:5″.

The superstructure is four reinforced concrete continuous T-beam spans: two at 51′ 5″ and two at 71 ft, with a 26 ft roadway and two 2′ 6″ sidewalks.

Specifications require that grade A concrete test at 3,500 lb per sq in. at 28 days. All falsework for the superstructure must be placed before any concrete is poured.

Superstructure concrete went under contract at $55 per cu yd but bids ranged from $40 to $95. Reinforcing steel, under contract at the low of $0.11 drew a high of $0.14 while structural steel in place ranged from the contract low of $0.30 to the high of $0.50 per lb.

Hourly wage rates include: $2.9875 for carpenters, $2.45 to $2.65 for truck drivers, $3.24 for pile driving operators, $2.12 for unskilled laborers and $3.00 for journeymen cement masons. On September 1 these go up 10¢ for carpenters, truck drivers and cement masons, 2¢ per hour for the others.

Bidders include:

1C Argersinger-Morse Const. Co., Ann Arbor, Mich. $94,915
2 L. A. Davidson, Lansing, Mich. 103,573
7 Jutton-Kelly Co., Dearborn, Mich. 122,397
EE Michigan State Highway Department, Lansing 106,834

Bids: 4-17-57 Items	Unit	Quantity	Unit Prices 1C	2
Exc, earth	cy	337	0.50	$2.00
uncl	cy	405	3.00	4.00
Treated timber piles, furn.	lf	1,312	2.00	2.00
drive.	lf	1,200	1.50	2.00
cutoff	ea	48	2.00	5.00
Conc grade A, 6A substr	cy	211	41.00	42.00
6B substr	cy	210	45.00	46.00
6B superstr.	cy	520	55.00	66.00
headers	cy	19	45.00	40.00
Cement	bbl	1,367	5.00	4.50
Steel, reinf	lb	150,075	0.11	0.12
struct, fab & erec	lb	18,750	0.30	0.30
Joint filler, ¾"	sf	32	1.00	1.00
Hot pour rubber tp filler	lf	66	2.00	1.00
Copper	lb	185	2.00	2.00
Bridge rail, fab, erec & paint	lf	482	14.00	14.00
Rubbed surf finish	sf	5,154	0.40	0.44
Joint waterproofing	sf	194	1.00	1.00
Grout flagstone paving	sy	250	7.00	7.00
Sand-gravel bkfl, loose meas	cy	600	2.00	2.00

Work started: 5-20-57 To be completed: 11-30-57

Forest Highway Structures On Mississippi Access Road

A 8-span steel girder bridge, three quadruple box culverts and two large pipe culverts will provide crossings for gaps in an abandoned railroad grade left by the removal of the original trestles. This will convert it to an access road for fire protection and logging in the Mississippi National Forest. Work is for the Bureau of Public Roads, Arlington, Va., H. J. Spellman, regional engineer. Bids were opened in Florence, Ala.

The $305,982 contract went to M & W Construction Co., Tupelo, Miss., on a low bid 2% above the estimate but only 0.2% below the second.

The aggregate length is 1.041 mi including roadway approaches, concrete pile substructure for the 337 ft steel I-beam and concrete bridge, three quadruple 10′x10′ box culverts and two 72″ pipe culverts.

Cl A concrete for the bridge ranged from a low bid of $67.50 to a high of $82, for drainage structures $46 to $70 and for culvert headwalls from $65 to $100 per cu yd.

Roadwork and the pipe culverts account for 25.5% of the contract price, the bridge accounts for 46.5% and the box culverts for 28%.

Prevailing wage rates are $1.60 per hour for common labor, $2.70 for carpenters and $3.08 for structural ironworkers.

The seven bidders include:

1C M. & W. Construction Co., Tupelo, Miss. $305,982
2 W. R. Fairchild Constr. Co., Ltd, Hattiesburg, Miss. 306,613
7 W. L. Sharpe Constr. Co., Inc, Memphis, Tenn 343,370
EE Bureau of Public Roads, Arlington, Va. 300,000

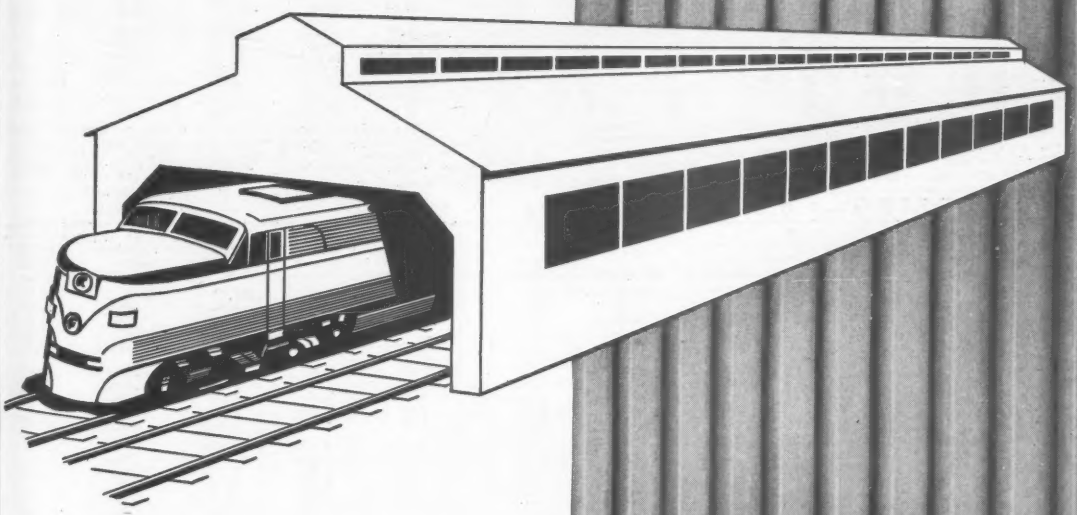
Bids: 4-19-57 Items	Unit	Quantity	Unit Prices 1C	2
Road Work				
Clear & grub	ac	3	$250.00	$410.00
Exc, uncl	cy	1,500	0.50	1.00
for structures	cy	50	2.00	5.00
borrow, case 1	cy	90,000	0.33	0.46
borrow, case 2	cy	10,000	0.50	0.85
Overhaul (1,000 ft free)	stay	10,000	0.01	0.06
Gravel surf crse, cl 3	cy	4,300	7.00	4.25
Conc cl A (hdw pipe culv)	cy	30	95.00	90.00
Reinf stl (hdw pipe culv)	lb	2,700	0.17	0.17
Bit coat corr S M culv pipe, tp 2, 10 ga, 72"	lf	135	30.00	36.25
Seed & mulch	unit	390	7.50	10.00
Furn & plc mulch	t	13	150.00	45.00
Bridge				
Exc, uncl for struct	cy	430	2.00	2.50
Sheath, stone or gravel	cy	80	8.00	8.00
Conc cl A	cy	585	69.50	67.50
Steel, reinf	lb	105,000	0.145	0.15
struc fur, fab & erec	lb	154,000	0.26	0.22
Piling, treated timber	lf	3,000	2.35	2.45
precast conc, 16"	lf	1,400	12.00	12.00
20"	lf	710	17.50	17.75
test	lf	200	12.50	10.00
Guardrail, beam type	lf	800	6.75	6.00
Box Culverts				
Exc, uncl for struct	cy	1,700	1.50	2.50
Foundation, fill	cy	30	5.00	5.00
Sheath, stone or gravel	cy	15	8.00	9.00
Conc cl A	cy	1,020	65.00	65.00
Steel, reinf	lb	114,000	0.145	0.15

Completion Schedule: 450 calendar days
Liquidated Damages: $50 per day

for RAILROAD STRUCTURES, too—

Ruberoid Corrugated Asbestos

SAVES MONEY THREE WAYS



The resistance of Ruberoid Corrugated Asbestos to acid, fumes, smoke and steam is a real benefit in railroad structures. In either roofing or siding, you *save money 3 ways* —

ONE, Ruberoid Corrugated Asbestos is an *economical material* to buy.

TWO, *construction costs are lower,* for the light weight of Ruberoid Corrugated Asbestos makes possible skeleton frame construction requiring less costly footings.

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For complete specification data, write The RUBEROID Co., 500 Fifth Avenue, New York 36, New York.

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ASPHALT AND ASBESTOS BUILDING MATERIALS

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate, Ready-mixed Concrete, Asphalt: Last, Aug. 8; Next, Sept. 5
- Iron and Steel Products, Pipe: Last, Aug. 15; Next, Sept. 12
- Wood Products, Glass, Explosives, Chemicals: Last, Aug. 22; Next, Sept. 19
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Aug. 29; Next, Sept. 26

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M. lots of 2,000 pieces or over, 4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. In quantity Common backing	Straight hard	LIME Per ton, in paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized[P] or lump
Atlanta	$149.90p	$299.80p	$334.55p	.....	.....	$30.50p	$32.70p	$23.50	$24.50	$.....
Baltimore	203.00	406.00	455.50	596.00	681.00	36.00k	41.00k	33.00	22.00	.....
Birmingham	135.00p	152.00p	.....	303.00p	376.00p	455.00p	27.00ff	38.00gg	35.02	22.30	26.33B
Boston	217.00†	231.56†	434.00†	520.50†	.....	.....	41.50p	46.50p	39.20†	31.20†	.....
Chicago	135.00	145.00	280.00	.....	.....	.....	30.00	32.00	38.00	35.20e	.....
Cincinnati	205.00j	225.00j	296.00jdd	213.00j	288.00j	314.00j	45.75ii	47.00j	30.04j	26.04j	30.04j
Cleveland	209 00	223.00	.....	475.00	.....	.....	43.00	47.00	31.00	25.00	.....
Dallas	152.00	152.00	300.00	364.50	446.25	552.50	26.75	45.00	41.60	25.08	27 65
Denver	.....	.....	.....	.....	.....	.....	31.50	47.50	46 00p	42.00p	46 00p
Detroit	253.00	275.00	506.00	.....	616.00	704.00	44.00p	44.50p	38.00	30.00	.....
Kansas City	158.00	158.00	312.00	312.00	400.00	500.00	33.00	33.00	36.26	34.26	29 76
Los Angeles	r	r	r	r	r	r	32.50§	.....	34.00	34.00	35.00
Minneapolis	188.00p	210.00p	439.00p	210.00pu	.....	.....	43.00vp	52.50ii	46.00bbe	36 00bbe	48 00bbde
Montreal	170.00au	178.00au	325.00au	270.00q	400.00q	.....	42.00C	49.00C	39.00	22.00	13.25
New Orleans	186.00	186.00	380.00	380.00	.....	.....	40.00	55.00	44.00	32.00	32.00P
New York	153.10h	168.00h	231.70ch	233.90kn	.....	.....	44.00	.....	37.00	35.00	.....
Philadelphia	169 00	180.20	337.90	405 00	.....	.....	30/34	38/42	27.60	25.60	3.17m
Pittsburgh	147 50A	157.75A	295 00A	335 00A	435 00A	500.00A	39 00A	46 00A	32 00A	28.00A	.....
St. Louis	178 50p	185.00p	391.00p	491.00p	459.00	621.50	43.00l	41.50	0.95aa	.80aa	1.35z
San Francisco	156 85*	177.10b	235.30dd*	.....	.....	.....	42.50*	42.50*	27.75	27.75	30.50i
Seattle	225.00p	250.00p	450.00p	250.00pw	.....	.....	43.00	57.00	52.00bb	40.00bb	4.50mbb
Toronto	146.00	157.00	289.00	234 00f	395.00	30.00	63.00	36.00	33.50	31.50	31.50

J[s] F.o.b. yard. *e* F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *p Truck lots. *q Provincial and Municipal tax extra. *r Not used; earthquake danger. *b Per 50 lb bags. *c 6 x 12 x 12 in.-3 cell. *d Pulverized hot. *e 5%, 10th following month. *f 8 x 8 x 12. *g 5½ x 8 x 12. *h F.o.b. trucks, lob site N.Y.C. *i 60-lb. sacks. *j Truck load or over. *k $1.00 discount. *l Red face. *m Per bbl., 180 lb. processed. *p 7¾ x 7¾ x 12. Speed tile. *o mason's double hydrated pressure. *s 8 x 16 x 12. *t 5½ x 8 x 11¼. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 12. *y Stacked. *z Pebble; 80 lb. sack. *aa 50 lb. sack. *bb LCL. *dd 6 x 12 x 12. *ff 80% common. *gg Rough. $40.00 Smooth. *ii Chi common. *A 2% cash. *B lumps, $26.72 *C $4.50 for del.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb. in 100 lb. cases In oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES; Carload lots f.o.b. factory Rolls, slate surfaced, 55-60 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 200 lb. bbl. per ton
Atlanta	$16.50	$30.125	$3.80	$3.86	$3.31	$2.39	$2.20	$2.62	$0.67	$57.75
Baltimore	16.25	29.75	2.75	4.25	3.35	2.78	4.25	4.25	.48	50.18
Birmingham	16.50	30.125	3.90	3.40	....	3.09	2.29ii	3.29ii	.82ff	45.00x
Boston	16.25	29.75	....	....	....	3.63gg	2.83ag	3.83ag	.80gg	58.00g
Chicago	16.25	29.75	....	....	....	3.69ju	2.98je	2.98je	46.00bbe	55.70i
Cincinnati	16.25	29.75	....	....	....	2.92	2.50	2.53	.618y	53.96
Cleveland	16.25	29.75	2.35ggg	2.52gg	2.82gg	3.30g	2.54e	2.54e	.454y	47.00gg
Dallas	16.50	30.50	....	3.13B	....	3.00u	3.00e	3.00e	.464	65.00hh
Denver	16.75	30.25	3.20	5.15	3.04	2 80	2.10e	2.40e	.48ff	50.00
Detroit	16.25	29.75	3.35	3.35	2.80	3.30	2.54f	2.40ff	.58ff	47.30
Kansas City	16.25	30.50	3.94	3.38	2.96	3.71ii	2.85e	2.85e	.684y	.....
Los Angeles	16.25	30.00	3.35n	4.50n	4.20n	3.20n	2.15en	3	.70ny	3
Minneapolis	16.25	29.88/29.75	....	....	....	2.99	2.41hi	2.41hi	.442i	50.00r
Montreal	.....	.....	5.02Dff	5.94Eff	4.65Fff	5.40	4.65f	4.65f	1.60	....
New Orleans	.....	.....	....	....	....	2.74	2.18	2.43	0.689	.....
New York	16.25C	29.75	....	....	....	3.15	2.43o	2.43o	.444s	50.00*
Philadelphia	16.25	29.75	3.60	3.40/3.65	3.50/4.60	3.00/3.30	2.54o	2.54o	.37/.45	48/54
Pittsburgh	16.25	29.75	3.10fG	3.36fH	3.68fI	3.37e	2.59u	.....	.45	.....
St. Louis	16.25	29.75	....	....	....	3.70iis	2.75kh	2.75kh	.46y	64.00
San Francisco	16.25	30.00	3.20	4.30	3.50	2.69	2.09aa	3.10	.47jj	54.00
Seattle	16.25	30.25	3.47ee	4.19ee	....	3.72qcc	3.22hcc	....	.50ee	47.20ee
Toronto	.....	.....	....	....	....	4.45	4.10e	4.65o	1.70j	88.00A

*† Delivered. * Note: Red lead in oil 50¢ higher than white lead in oil. ** Aver. wt. approx. 425 to 550 lbs drums. *a Red lead prices change frequently due to pig lead price changes. *b U. S. War Dept. Spec 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e 15 lb. *f Per 432 sq. ft. *g F.o.b. yard, Roxbury. *h Per roll, 65 lb. *i Net carload lot prices; Minneapolis and vicinity. *j 45 gal containers. *k Per cwt. *l Not used. *n F.o.b. city. *o Per 60-lb. roll. *p 6-drum, 50 gal. ea. *q Per 90-lb. roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb. square. *v Per ton, *w Price to contractors $1.25 less. *x Mineral surfaced. *y 55-gallon container. *z Drums. *aa 15 lb., 324 sq ft roll. *bb Roofers coating and cement; *cc LCL, truck delivery. *ee Asphalt pitch in 100 lb. package. *ff 5-gal. drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per roll. *jj Asbestos roof coating. *A 400 lb barrels. *B ASTM Spec D-962-49. *C 95%. *D Std. Black. *E Ready-mixed. *F Over 80% ferric oxide. *f Milt. Spec: G, TTP27; H, TTV81; I, TTP31.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS & TUBING

	PLASTER‡ Neat per ton	Gauging per ton	VERMICULITE‡ Home Insulation pellets	Plaster aggregate	Concrete Aggregate Untreated per bag of 4 cu ft	PERLITE‡ Plaster Aggregate	Concrete Aggregate Untreated	ALUMINUM SHEET†† Flat .102" th 38"x96" & 48"x144" per lb‡t	Corr roof .032" th 35"x12' per shu	STAINLESS STEEL† SHEET-TYPE 302g 20 ga 48"x96-120" per cwthh	28 ga 36"x120" per cwtmm	COPPER WATER* TUBING-TYPE L 2000 ft lots per ft ½"b	⅝"s
Atlanta	$31.00	$36.00	$1.55s	$1.65s	$1.80sl	$1.65	$1.65	$0.422n	$8.97n	$61.44n	$67.50	$16.74f	$23.41f
Baltimore	22.85	33.25	0.95	1.15	1.15	1.15	1.65	0.431	0.489r	56.25	64.25	0.1674	0.2341
Birmingham	33.00	39.00	1.55	1.55	1.80l	1.55	1.55	0.466	10.02	67.34	76.09	0.1608	0.2249
Boston	22.00	30.00	1.40	1.40	1.45	1.45	1.50	0.446	28.50p	65.39dd	71.77ddff	0.1608	0.2249
Chicago	26.80	26.80	1.55	1.60	1.60l	1.50	1.50	0.506x	10.376s	65.15aee	73.90aee	0.1608	0.2249
Cincinnati	28.00*	28.00*	1.75	1.75	1.75	1.85	1.90	0.434	9.56	65.03	71.28ff	0.1668	0.2034
Cleveland	26.50	43.00	1.13ii	1.16ii	1.24l	1.45	1.45	0.506aa	8.66	67.83	76.58	16.08f	22.49f
Dallas	30.00	32.00	1.05	1.21	1.37l	1.21	1.32	0.474	0.5100r	66.59	80.00	0.200	0.2810
Denver	25.00	25.00	1.50	1.40	1.50	1.40	1.55	0.462	10.18	66.30gg	74.80gg	0.2006	0.2810
Detroit	25.00	25.00	1.28	1.32	1.41	1.45	1.45	0.456s	10.376s	65.15a	73.50a	13.30f	24.78f
Kansas City	30.00	35.00	1.29	1.45	1.48l	1.40	....	0.444	11.40	67.50	76.25	16.08f	22.49f
Los Angeles	26.20	27.20	1.25ii	1.15k	1.25	.95	1.10	0.524	10 46d	64.45	72.95	0.1674	0.2341
Minneapolis	32.00	32.00	1.55	1.60	1.80	1.40	1.40	0.503	14.25w	66.21	74.71ff	0.1591	0.2222
Montreal	27.60oo	35.60oo	1.20	1.40	1.50	1.15s	1.15s	0.437	9.92	66.50	.....	0.228	0.287
New Orleans	32.00	45.00	1.25	1.25	1.25	1.25	1.25	0.464	8.303	62.04	70.54	0.1809	0.2658
New York	24.00	30.00	1.35	1.30	1.50	1.40	1.40	0.506a	10.14ad	68.55	77.30	16.08f	22.49f
Philadelphia	23/25	32.00	1.35	1.35	1.40l	1.05	1.05	0.44aw	9.46a	66/68a	75/77a	20.00f	26.09f
Pittsburgh	28.00nn	28.00nn	1.60nn	1.50nn	1.35	1.50	1.65	0.524	9.56	63.41	76.18	0.1403	0.1788
St. Louis	29.00	40.00	1.35	1.60jj	1.55	1.60	1.65	0.492	10.37	70.86	77.36y	16.08fm	22.49fm
San Francisco	27.85	33.00	1.20	1.20	1.30	1.20	1.30	0.49	9.00	64.95	73.45	0.1608	0.2249
Seattle	41.00	44.00	1.45	1.25k	1.85l	1.50k	....	0.506	9.964	63.00	83.00	0.1608	0.2249
Toronto	28.50	45.50	1.20	1.30	1.45l	....	1.55	0.4095	24.00ae	73.74	86.52	0.2768	0.3347p

‡ trucklots, delivered † fob warehouse *fob city *a delivered *b½" O.D. *c⅝" O.D. *d 0.100"th *e 34" x 60" sheet *f per 100 ft *g 5 tons & up: cold roll, anneal & pickled: 2B finish *h 15M lb lots *j 1100 & 3003 alloy, mill finish *k bag of 3 cu ft *l treated with air entraining agent *m 2-10M ft *n fob mill, fr allow *p 100 sq ft *r per lb. *s 30 lb bag *t 38" x 96;–10.81 lb /sh; 48" x 144"; 21.7 lb /sh *u 19.31 lb /sh *v fob plant *w 48" x 144" *x 100th *y 27 gauge *aa 16M lb & up *dd add $0.75 cwt boxing *ee 4 tons & up *ff 26 ga *gg add $2 /cwt boxing; $0.75/cwt on skids *hh Theoretical wt for 48" × 96"; 60.4-lb, per sh. *ii 300-bag lots *jj 100-lb bag *mm Theoretical wt: 19.7-lb per sh. *nn 2% cash *oo Incl. Federal tax.

Materials and Labor Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES

- Cement, Aggregate, Ready-mixed Concrete, Asphalt: Last Aug. 8; Next, Sept. 5
- Iron and steel Products, Pipe: Last, Aug 15; Next, Sept. 12
- Wood Products, Glass, Explosives, Chemicals: Last, Aug. 22; Next, Sept. 19
- Clay Products, Lime, Plaster, Paint, Roofing: Last, Aug. 29; Next, Sept. 26

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	GYPSUM PLASTER BOARD tapered edge per Msq ft 3/8"	1/2"	GYPSUM BOARD LATH plain or perf per Msq ft 3/8" x 16" x 48"	GYPSUM SHEATHING tongue & groove per Msq ft 1/2" x 2' x 8'	FIBER BOARD SHEATHING asph impreg & coat per Msq ft 1/2" sq ed	25/32" T&G	FIBER BOARD INSULATION sq edge, paint per Msq ft 1/2"	MINERAL WOOL INSULATION† loose, per 40-lb bag a	3" batts per M sf	GLASS FIBER INSULATION† loose, per 40-lb bag a	per M sf	ALUMINUM FOIL 60# Kraft 1 side foil per roll of 250 s. f.	Expansible Blanket 2 layers foil per Msq. ft
Atlanta	$70.00	$80.00	$43.50	$70.00	$70.00	$127.00	$70.00	$1.00	$60.00	$2.00b	$75.00	.....	.....
Baltimore	51.35f	44.75f	52.55f	55.00f	65.00f	108.50f	69.00f	1.30	66.50	1.50	45.00	$4.00g	$33.80
Birmingham	73.00	60.00	47.77	75.00	82.00	136.50	81.00	1.40	70.00	1.60	75.00	3.13g	.....
Boston	60.00m	50.00m	36.00m	60.00m	65.00m	120.00m	79.00m	1.45	75.00	....	60.00	5 30	52.80
Chicago	67.00	63.00	43.00	62.00	85.00	123.00	85.00	1.55	80.00b	....	63/65l	5.25g	....
Cincinnati	47.40w	42.35w	31.55w	50.55w	70.00w	125.00w	72.50w	1.25	60.00	1.25	73.50	3.12j	50.00
Cleveland	60.50	55.00	40.00	65.00	74.00	130.00	80.00	1.35/1.50	80.00	....	60.75*	20.00o	66.00
Dallas	58.00	55.00	42.50	66.00	73.50	122.50	70.00	1.92	66.00	1.40	66.10	4.30g	.....
Denver	62.00	54.50	41.00	62.00	75.90	126.00	74.90	....	71.00u	1.28s	75.00bb	11.00r	31.00
Detroit	57.60	49.50	36.00	61.00	59.50	90.00	59.00	....	.....	1.95b	83.00	....	....
Kansas City	65.00	55.00	40.00	.....	72.00	115.00	75.00	1.40	75.00	2.00	75.00	4.10d	44.10t
Los Angeles	64.0t	59.00	0.33Ss	66.50	71.87	121.25	80.00	.....	82.00	1.35s	64.00	4.57g	.....
Minneapolis	75.00	65.00	0.40x	80.00	78.00	140.00	78.00	2.00	80.00	1.80	80.00	5.50	...
Montreal	58.00	47.40	36/39	53.00	63.25	.....	63.00	1.50	66.00	1.50	66.00	9.00q	56 00
New Orleans	57.00	48.00	45.00	60.00	75.00	125.00	72.50	1.75	65.00*	....	.....	.....	.....
New York	53.00	45.50	35.00	54.00	71.00	117.00	72.50	1.55b	68.50	1.55b	68.50	4.05i	52.50aa
Philadelphia	50.55	48.53	34.40	49.54	68.73	105/110	55/65	....	60/70	....	70/75	5.60/6.34	40 50
Pittsburgh	.....	47.50	35.00	.....	60.00	100.00	55.00	1.05s	55.00s	1.05s	55.00s	2 75i	38.50
St. Louis	65.00	55.00	39.00	70.00	75.00	120.00	80.00	1.35	85.00	1.65	66.00	4 50i	...
San Francisco	54.00	46.00	0.35z	57.00	67.50	108.00	66.50	1.60	66.50	1.60	66.50	4.95	55.00
Seattle	66.00	57.50	49.45	65.00	74.50	125.00	73.50	1.60y	74.00	1.60*z	50.00*j	4.25	46.50
Toronto	61.00	50.00	38.00	64.50	75.00	.....	.....	1.40	60.00	....	60.00	16.00e	45.45

** fob warehouse. [a] for hand packing. paper backing. [b] 30# bag. [c] 2-side foil. [d] 40# kraft paper, 5 Msf, 100/500 rolls. [e] 20# sq ft bag, 4" thick. [f] full trailer loads. [g] 80# kraft [h] LCL. [i] 40#. [j] 80#. [k] 7". [l] 2". [m] 10 ton quantities. [n] distributor's siding. [o] per Msf roll. [p] per sf. [q] 500 sf. [r] per cwt. [s] 35# bag. [t] Insufoil. [u] flame proof $75 [w] fob city. [x] sq yd. [y] 26# bag. [z] 32# bag [aa] 12" to 24" width. [bb] semi-thick

* Cost of living bonus incl. in base pay. † FB. [a] 6 hr. day. [b] 7 hr. day. [c] 5% vac. stamp fund plus 10¢ WF for bricklayers; 4% VF for electricians plus 8¢ WF, 1% PF. [d] H & WF. [e] 10¢ H & W, 10¢ VF. [f] 10¢ H & W, 10¢ PF, 10¢ VF. [g] 7½¢ H & W, 2¢ Ed. F. [h] $2.85 homes & housing plus 7½¢ WF. [i] WF. [j] Inc. 4% VF; 1% PF pd by employer. [k] 10¢ WF, 5¢ VP, 5¢ HP. [l] 4% VF. [m] 7½¢ WF, 10¢ PF. [n] 7% V & Hol., 3% H&W, 1% PF. [o] 10¢ WF, 10¢ PF. [p] 3% WF, 3% PF. [q] 10¢ WF, 6% V & H, 3% PF. [r] 4% WF, 20¢ PF as 8% W & PF, 4% VF, 1% NC, 6 PH. [t] Inc. 7½¢ WF. [u] 10¢ WF, 1% PF, ½% apprent. [v] 1 drum; 2 drums. 2.80. [w] 10¢ WF, 10¢ VF. [x] 2% VF. [y] 10¢ H & W, 10¢ PF. [z] 10¢ WF, 5¢ HP. [A] 15¢ WF, 15¢ PF, 20¢ BF. [B] 7½¢ VP, 5¢ PF, 1½¢ Ed. F. [C] Simple; tandem 3.22. [D] 10¢ H & WF, 5¢ indus. prom. [E] 6% WF, plus travel pay per day. [F] Plus $4 per day annuity contrib. [G] 10¢ WF, 10¢ VF, 3¢ prom. [H] 10¢ WF, 10¢ VP, 3% PF, 2% PH. [I] 15¢ H & WF, 5¢ advtg. [J] 5% WF, 6 PH, 3% PF. [K] 25¢ W & PF, 15¢ VF. plus 6¢ misc. [L] 3% WF, 3%PF, 2% VF, 1% Ed. F. [M] 10½¢ WF, 7½¢ PF. [N] 1% PF. [O] 10¢ WF, 1% NECA [P] 10¢ H Ins., 7½¢ PF, 5¢ VF. [Q] 2 drums; 1 drum $2.85/3.00+10¢ WF. [R] 10¢ H & WF, 2¢ admin., 1¢ apprent. [T] H & W, VF. [U] 10¢ WF, 13¢ VF, 3¢ PF. [V] 5% WF, 3% PF. [X] 7½¢ WF, 14¢ VF. [aa] 7¢ WF, 15¢ PF. [bb] 8¢ WF, 2¢ advg. [dd] 15¢ WF, 20¢ PF, 5¢ Jt Bd, 5¢ prom. [ff] 10¢ H & W, 5¢ PF. [gg] 10¢ ins. [hh] 7½¢ H & WF, 5¢ indus. prom. [ii] 4% WF, 4% PF, 6 PH

HOURLY WAGE RATES—Base rate + fringe benefits

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor—Building	Common Labor—Heavy Const
Atlanta	$3.45	$2.90	$3.15+7½¢d	$3.225	$3.125	$3.30+7¢e	$3.30+25¢d	$1.55	$1.55
Baltimore	3.70+10¢d	3.05+7½¢d	3.65+7½¢d	3.55/3.70+10¢Q	3.35+7½¢d	3.425	3.30+7½¢d	1.90+7½¢d	1.90+7½¢d
Birmingham	3.50	2.70	3.20+7½¢	2.52r	2.92	3.30	3.25+10¢r	1.50	1.60
Boston	3.65+15¢d	3.25+10¢d	3.70+20¢v	3.65+10¢d	3.65+20¢f	3.30+13¢R	3.20+10¢d	2.45+7¢d	2.35+7¢d
Chicago	3.82+7½¢t	3.45+20¢e	3.80+15¢t	3.40+5¢t	3.70+23¢t	3.65+22¢t	3.55+22¢aa	2.77½+7½¢t	2.77½+7½¢t
Cincinnati	3.75	3.45	3.50+7½¢d	3.225/3.475	3.50	3.67+4¢N	3.65+9½¢v	2.50	2.40
Cleveland	3.715+10¢t	3.74	3.64+10¢t	3.74	3.74	3.765	3.64+10¢d	3.00	2.915
Dallas	3.775	3.10	3.125+7½¢t	3.20	3.50+10¢t	3.25+7½¢t	3.25+7½¢t	1.62½	1.62½
Denver	3.75	3.20	3.125+7½¢d	2.95	3.375+12½¢hh3.40t		3.35+15¢D	2.10	2.10
Detroit	3.53+38¢H	3.25+40¢e	3.60+22½¢P	3.20+20¢k	3.58+34¢o1	3.65+25½¢H	3.45+14¢B	2.58+15¢e	2.58+15¢e
Kansas City	3.75	3.125	3.20	3.22	3.50	3.325O	3.40+7½¢t	2.255	2.305
Los Angeles	3.80+10¢bb	3.22½+10¢d	3.40+10¢t	3.19+10¢d	3.94+15¢d	3.90t	3.70+10¢d	2.50+7½¢t	2.50+7½¢t
Minneapolis	3.575	3.15	3.32	3.10	3.25+23¢Q	3.25+36¢n	3.215+20¢e	2.40	2.40
New Orleans	3.325+5¢t	2.85	3.20+7½¢t	2.925+7½¢t	2.985+5¢t	3.275+7½¢t	3.15+15¢t	1.60	1.60
New York	4.25+37¢b	3.90+31¢bJ	4.30+26¢p	4.00+32¢ii	4.00+50¢A	3.65+40¢F	3.95+35½¢bb	2.80+22¢V	2.80+22¢V
Philadelphia	3.75+17¢t	3.535	4.05+18¢M	3.20½/3.95½+10¢t	3.65+15¢t	3.95+16¢w	4.00+19¢p	2.25	2.55
Pittsburgh	3.75+17½¢m	3.525+7½¢t	3.80+1½¢d	3.42+10¢d	3.575+17½¢m	4.00+28¢d	3.775+17½¢m	2.325+17½¢m	2.20+15¢ff
St. Louis	3.75+2½¢c	3.35+10¢t	3.37+7½¢t	3.45t	3.675+7½¢t	3.75+26¢c	3.70+29¢t	2.40+10¢t	2.40+10¢t
San Francisco	3.75+45¢dd	3.175+30¢f	3.40+10¢t	3.205+10¢t	3.61+20¢w	3.525+26¢G	3.70+46¢K	2.505+10¢t	2.505+10¢t
Seattle	3.75+10¢d	2.94+10¢d	3.25+10¢d	3.13+20¢p	3.40+10¢d	3.40+21½¢X	3.40+23¢T	2.51+10¢d	2.51+10¢d
Montreal	2.20+16¢t	2.00+16¢t	2.15+16¢t	1.90+15¢t	2.22+19¢t	2.20+18¢t	2.22+18¢t	1.40+10¢t	1.40+10¢t
Toronto	2.71+10¢t	2.50+10¢t	2.50+10¢t	2.60+10¢t	2.60+20¢ll	2.80+11¢t	2.49+16¢ll	1.55+6¢t	1.55+6¢t

ENR Skilled Average (Bricklayers, Carpenters, Iron workers): $3.585. ENR Common Average $2.334.

	Truck drivers 1½ T	—4 cy	+4 cy	Tractor Operators Incl. bulldozers 34-49 hp	70-100 hp	100 & over	Tractor scraper 15-16 cy	Power cranes & shovels ½ cy	¾ cy	Motor grader oper	Air comp oper	Air tool oper
Atlanta	$1.70	$1.80	$2.05	$2.70	$2.70	$2.70	$2.70	$3.225	$3.225	$2.70	$2.475	$1.77
Baltimore	1.60+7½¢a	1.75+7½¢a	1.85+7½¢a	3.15/3.30b	3.15/3.30b	3.15/3.30b	3.15/3.30b	3.55/3.70+10¢ab	3.55/3.70+10¢ab	3.15/3.30b	2.85/3.30b	2.40
Birmingham	1.60	1.79ff	2.05gg	2.66	2.66	2.66	2.80	2.80	2.80	2.76	2.385	1.75
Boston	2.395c	c	c	3.275+10¢ad	3.275+10¢ad	3.275+10¢ad	3.275+10¢ad	3.65+10¢a	3.65+10¢a	3.275+10¢a	3.20+10¢a	2.60+7¢a
Chicago	2.16+12¢fo	.....	.....	3.15+5¢a	3.30+5¢a	3.20+5¢a	3.00+5¢a	3.75+5¢a	3.75+5¢a	3.25+5¢a	3.10+5¢a	.....
Cincinnati	2.33oo	2.43oo	2.53oo	3.225	3.225	3.225	3.225	3.475	3.475	3.475	3.475	3.475
Cleveland	2.625+10¢a	2.625+10¢a	2.625+10¢a	3.49	3.49	3.49	3.49	3.74	3.74	3.49	3.365	3.365
Dallas	1.625	1.625	1.625/2.625l	1.625/2.625l	1.625/2.625l	1.625/2.625l	1.625/2.625l	1.625/2.625l	1.625/2.625l	1.625/2.625l	1.625/2.00l	1.775/2.00l
Denver	2.20	2.30	2.45	2.20	2.80	2.80	2.80	2.95	2.95	2.80	2.80	2.40
Detroit	2.45	2.45	2.45	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.50+10¢a	3.225+10¢a	2.71+25¢mm
Kansas City	2.23n	2.23o	2.305p	2.425	2.925a	2.975a	2.975r	3.22	3.22	2.835	2.975t	2.35
Los Angeles	2.63+7½¢a	2.63+7½¢a	2.83+7½¢a	3.47+10¢a	3.47+10¢a	3.47+10¢a	3.56+10¢a	3.56+10¢a	3.56+10¢a	3.56+10¢a	2.74+10¢a	2.71+7½¢a
Minneapolis	2.40	2.40a	2.55t	2.78	3.00a	.....	3.00	3.22a	3.48a	3.24	2.67	2.53
New Orleans	1.75	2.00	2.00	2.275+7½¢a	2.925+7½¢a	2.925+7½¢a	2.925+7½¢a	2.925+7½¢a	2.925+7½¢a	2.925+7½¢a	2.275+7½¢a	1.70
New York	2.21bb	2.75+14¢bb	2.75+14¢bb	3.375+27¢h	3.375+27¢h	3.375+27¢h	3.50+25¢h	4.25+34¢h	4.25+34¢h	3.50+28¢h	3.50+28¢ii	3.10+15½¢ee
Philadelphia	——2.215/2.35+12½¢——			——3.20½/3.95½+10¢——			3.20½/3.95½ +10¢a	——3.20½/3.95½+10¢——		3.20½/3.95½ +10¢a	3.20+10¢a	2.25+10¢a
Pittsburgh	2.27+15¢m	2.40+15¢m	2.50+15¢m	3.23+10¢a	3.23+10¢a	3.23+10¢a	3.23+10¢a	3.42+10¢a	3.42+10¢a	3.42+10¢a	3.06u/3.60s	2.25+10¢a
St. Louis	2.50+7½¢aa	2.60+7½¢a	2.60+7½¢a	3.45kk	3.45kk	3.45kk	3.45kk	3.45kk	3.45kk	3.45kk	2.90kk	2.90kk
San Francisco	2.55+10¢e	2.55+10¢e	2.69+10¢e	3.32+10¢a	3.32+10¢a	3.32+10¢a	3.32+10¢a	3.65+10¢a	3.65+10¢a	3.48+10¢a	2.93+10¢a	2.65+10¢a
Seattle	2.80+17½¢nn	2.80+17½¢nn	3.00+17½¢ee	3.10+20¢ll	3.10+20¢ll	3.10+20¢ll	3.10+20¢ll	3.46+20¢ll	3.46+20¢ll	3.19+20¢ll	2.85+20¢ll	2.71+10¢a
Montreal	1.40+11¢ll	1.40+11¢ll	1.40+11¢ll	1.60+15¢ll	1.83+15¢ll	1.83+15¢ll	1.83+15¢ll	2.09+16¢ll	2.09+16¢ll	1.83+15¢ll	1.70+15¢ll	1.70+15¢ll
Toronto	1.60+6¢ll	1.60+6¢ll	1.60+6¢ll	2.00+8¢ll	2.10+8¢ll	2.10+8¢ll	2.10+8¢ll	2.60+10¢ll	2.60+10¢ll	.....	2.15+9¢ll	2.15+9¢ll

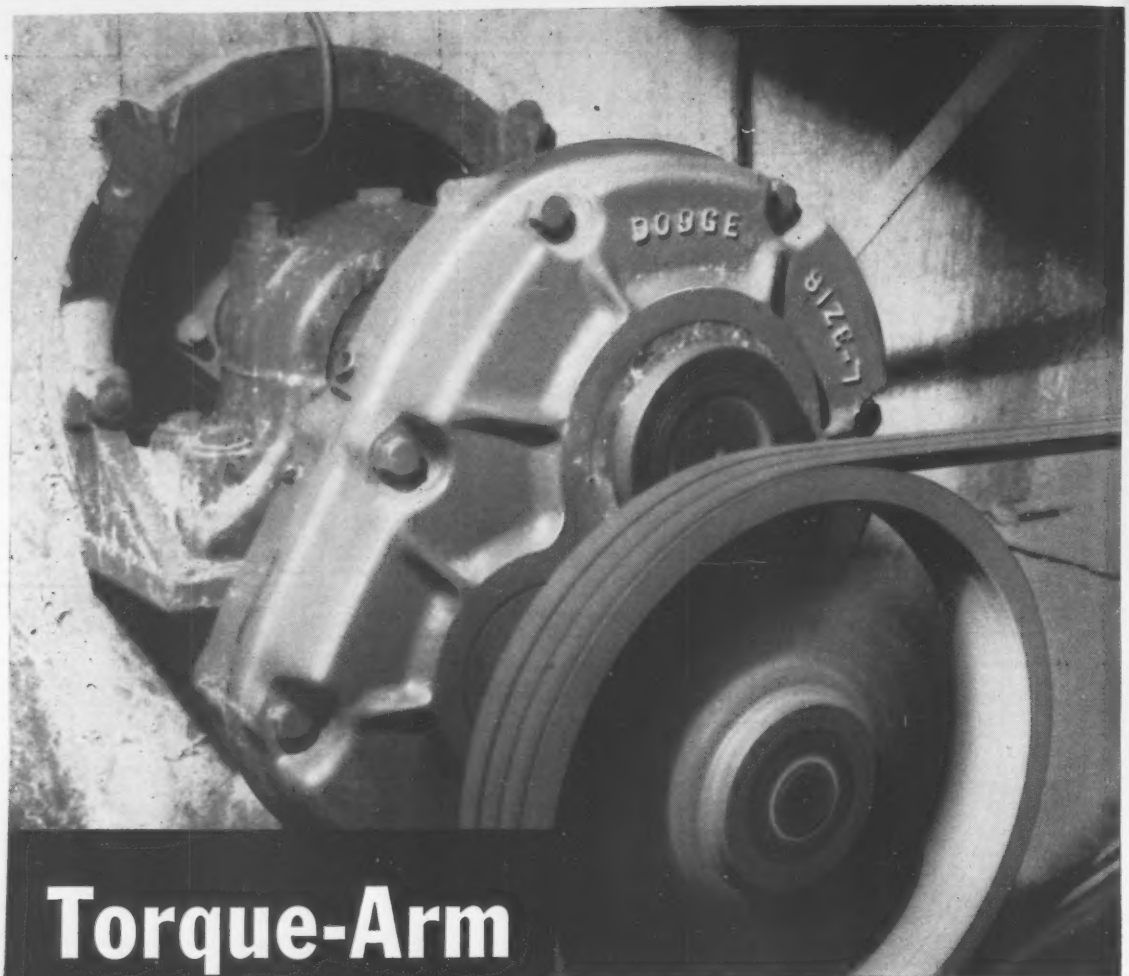
[a] H & WF. [b] lower rates, straight time; other broken. [c] 2-axle; 10 wh. 3 axle $2.45; Euclid $2.65. [d] intermediate. [e] bldg contr.; highway $2.45+7¢ WF. [f] less than 2-T. [g] up 6 cy. [h] 4% WF, 4% PF. [i] 6-8 cy. [j] plus $2 pd by employer for hosp. death benefits to family. [k] bldg constr; steel contr $3.475. [l] higher rates are union, other taken from min. wage approved by County Comm. Court. [m] 10¢ H & W, 5¢ PF. [n] flatbed. [o] under 10 cy. [p] over 10 cy. [q] over 50 hp. [r] blade grader. [s] WF. [t] single. [u] incl. 10¢ H & W. [v] incl. 7½¢ H & W. [w] 7½¢ H & W. 5¢ PF. [x] 7½¢ WF, 10¢ PF. [y] to 3½ cy. [z] 3½ cy & over. [aa] plus W & PF. [bb] 3% WF, 2% PF, 11 PH. [dd] up to 5 cy. [ee] 5 cy & over. [ff] 1½ to 3T. [gg] up to 5 T; 5 T & over, 2.12. [ii] 4% VF. [kk] Incl. 7½¢ WF. [ll] FB. [mm] 10¢ H & W, 10¢ ins. 5¢ VP. [oo] Plus $2.25 wk. WF. [ss] 5% WF, 6 PH. [tt] 10¢ H & WF, 10¢ PF.

MEXICO CITY PRICES

n Pesos, F.o.b. City		July '57	Aug. '57
Common Wages—Building (8 hr. day) (Peons)	av. per hr.	1.38	1.38
Common Wages—Heavy Const. (8 hr. day) (Peons)	av. per hr.	1.38	1.38
Skilled Labor Wages			
Carpenters (8 hr. day) 1 cl.	av. per hr.	2.48	2.48
Bricklayers (8 hr. day) 1 cl.	av. per hr.	2.48	2.48
Struct. Iron Workers (8 hr. day)	Remachadores. av. per hr.	3.77	3.77

Struct. Steel, Shapet		July '57	Aug. '57
3"-15" x 12 meters	per metric ton	2100.00#	2100.00#
# fob Monterrey			
Reinf. Steel, Corr. Rods			
¼" x 11 meters	per ton	2000.00	2000.00
⅜" x 11 meters	per ton	2000.00	2000.00
½" x 11 meters	per ton	2000.00	2000.00
⅝" x 11 meters	per ton	2000.00	2000.00
¾" x 11 meters	per ton	2000.00	2000.00
1" x 11 meters	per ton	2000.00	2000.00

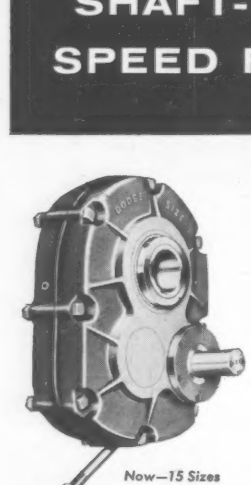
Gravel truck load at 3½ cu. meters		July '57	Aug. '57
Blue Gravel	per tr. load	75.00	75.00
Rose Gravel	per tr. load	73.00	73.00
Cement, Std. Port. (Tolteca).	per tan	240.00	240.00
Lumber			
1" Pine	per M ft.	1400.00	1400.00
1½" Pine	per M ft.	1650.00	1650.00



Torque-Arm

SHAFT-MOUNTED SPEED REDUCERS

Save Up to 1/3 in Installation —Deliver 97% Efficiency!



Now—15 Sizes
1 hp to 100 hp
output speeds
12 to 378 rpm

Easy to install! Mounted directly on the driven shaft. Locked at both ends. Dodge Torque-Arm Speed Reducer requires no foundation, no flexible coupling, no sliding base, and there's no lining-up problem. Amazing economy is matched by efficiency in operation—up to 97%.

Unit is driven through V-belt drive. Stock Taper-Lock Sheaves prescribed for each job permit speed ratios required. Tri-Matic Overload Release and backstop available, if desired. Dodge Torque-Arm is America's most complete line of shaft-mounted Speed Reducers. Ask your Dodge Distributor—or write us.

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CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory trained by Dodge, he can give you valuable assistance on new methods. Look for his name under "Power Transmission Machinery" in the yellow pages of your phone book—or write us.

DODGE
of Mishawaka, Ind.

Bids Asked—Low Bidders—Contracts Awarded—

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. WETZEL, M. E. SCIORRA, D. TARTAGLIA, S. N. NOLAN, Reports
I. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

BUILDINGS—BA

▲ **Mass., Brockton**—SCHOOL—BA 9/6—City, Richard E. Samuelson, Inspector of Bldgs., City Hall, Brockton, North Junior High School, Oak St., $1,700,000. Plans deposit $75 refundable. Edmund I. Leeds & Assoc. Inc., 153 Brighton Ave., archt. Bids July 16 rejected. CD 7/26, under LB.

▲ **Conn., Monroe**—SCHOOL—BA 9/11—Town, School Bldg. Comn., Monroe Town Hall, Stepney Depot, junior-senior high school, $1,000,000. Plans deposit $100. CD 11/28/56.

▲ **Conn., New Haven**—OFFICE—BA 9/17—Southern New England Telephone Co., 227 Church St., New Haven, 9 story office bldg. Oak St. Redevelopment Proj. $10,000,000. CD 11/14/56.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW HAMPSHIRE**—Dpt. P. Wks. & Hys., Concord, **Manchester Sand, Gravel & Cement Co.**, Box 536, Manchester, N. H., CA **$1,747,079**; b. conc. roadway, 4-lane, 1.134 mi. and 3 steel beam bridges, Concord. Bids Aug. 2. CD 8/8, under LB.

▲ **Savin Brothers Inc.**, 410 Asylum St., Hartford, Conn., LB **$3,655,559**, est. $5,000,000 (7 bidders) New Founders bridge approaches and connectors, Hartford Side, 1,600 ft. c. conc. on riverfront section of Hartford-Springfield Expressway, north and south roadways, ramps, and viaducts, HARTFORD, CONN. The Greater Hartford Bridge Auth., 71 Capitol Ave., Hartford, Conn. Bids Aug. 19. CD 7/30.

▲ **Wexler Constr. Co. and Gil Wyner Co. Inc.**, 12 Newland St., Malden, Mass., CA **$1,151,000** Phase 1, Proj S1C, utilities and buildings, WINDSOR, CONN. Combustion Engineering Inc., Reactor Development Div., Central Ave., Windsor, Conn. CD 8/6, under LB.

BUILDINGS—LB & CA

▲ **Canter Constr. Co.**, 185 Corey Rd., Brookline, Mass., CA **$1,233,100**, est. $1,200,000, Proj. No. 80, HOSPITAL, High & Chestnut Sts., BROOKLINE, MASS. Allerton Hospital, 68 Allerton St., Brookline, Mass., Bids June 18. CD 6/21, under LB.

▲ **Vara Constr. Co. Inc.**, 718 Huntington Ave., Boston, Mass. LB **$1,393,000**, est. $1,655,000, E-607, AUDITORIUM, gymnasium, cafeteria and administration bldgs., State Teachers College, SALEM, MASS., Commonwealth of Mass., Dpt. Educ., 200 Newbury St., Boston, Mass. Bids Aug. 6. CD 7/25.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲ **N. Y., Brooklyn**—BA 9/12—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, structures and equipment; Contr. 2 electrical work; Contr. 3, heating and ventilating Contr. 4 plumbing, Southwest Brooklyn incinerator in east shore of Gravesend Bay between 25 Ave. and Bay 41 St. Plans deposit $100. CD 5/29.

▲ **New York**—BA 10/24—The Power Auth. of State of New York, The Coliseum Tower, 10 Columbus Circle, New York, Zone 19, Lewiston Power Plant and appurtenant works, in Lewiston, Niagara Co., Spec. PA-N-23003, **Niagara** Contract No. N-3. Plans deposit $50. Uhl, Hall & Rich, 230 Congress St., Boston 10, Mass., engrs. adv ENR 8/22. CD 8/18/54.

BUILDINGS—BA

▲ **Md., Baltimore**—DORMITORY BLDG.—BA 9/5—University of Maryland, 641 W. Redwood St., Baltimore, Zone 1, 5 story, brick, concrete, steel union dormitory bldg., Lombard and Greene Sts., $1,000,000. Lucius R. White, Jr., 1009 N. Calvert St., Baltimore, Zone 2, archt. Egli & Gompf, 1003 N. Calvert St., Baltimore, Zone 2, mech. engrs. Van R. P. Saxe, 701 St. Paul St., Baltimore 2, struct. engr. CD 7/12/56.

▲ **Pa., Pittsburgh**—HOTEL—BA 9/17—Hilton Hotels Corp., 401 7th Ave., New York, N. Y., Pittsburgh Hilton Hotel, $15,000,000. Seeley, Stevenson, Value & Knecht, 101 Park Ave., engrs. and William Tabler, 401 7th Ave., both New York, N. Y., engr. CD 8/16/56.

▲ **D. C., Wash.**—SCHOOL—BA 9/19—Georgetown University, 37 and O Sts. N.W., School of Foreign Service, $2,000,000. Plans deposit $75. Murphy & Locraft, 1518 P St. N.W., archts. CD 4/1.

▲ **N. Y., Brooklyn**—SCHOOL—BA 9/25—Bd. of Educ., Bureau of Constr., 42-15 Crescent St., Long Island City, Zone 1, general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for junior high school 142, Henry, Rapelyea and Coles Sts., $2,049,000. Plans deposit $20 for general constr.; $10 each for others. CD 5/20.

▲ **N. Y., New York**—SCHOOL—BA 9/27—Bd. of Educ., Bureau of Constr., 42-15 Crescent St., Long Island City, Zone 1, general construction, plumbing and drainage, heating and ventilating, electrical work and lighting fixtures for junior high school 38, St. Ann's Ave. and Rae St., The Bronx, $1,477,000. Plans deposit $25 for general constr.; $10 each for others.

HEAVY CONSTRUCTION—LB & CA

▲ **Westinghouse Corp.**, 40 Wall St., New York, N. Y. CA **$20,049,895** furnishing thirteen 167,000 kva generators for main generator plant for Niagara Power Proj. NEW YORK Power Auth. of State of New York, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y. Bids Aug. 15. CD 8/20, under LB.

▲ **MARYLAND**—State Rds. Comm., 108 E. Lexington St., Baltimore, Zone 2,
James Julian, Inc., Elsmere, Del., CA **$1,018,280** (7 bidders) Contr. S-195-1-120 and S-195-4-120, grading, drainage, surf. 3.523 mi. U.S. No. 13, Princess Anne By-Pass and 2 span prestressed conc. beam bridge over Manokia River, Somerset Co. Bids July 30. CD 8/7, under LB.

BUILDINGS—LB & CA

▲ **Vincent J. Smith Inc.**, Box 550, Binghamton, N. Y., CA **$1,108,400** general construction, HIGH SCHOOL, HERKIMER, N. Y. School Bd. of Educ., Central School Dist., Herkimer, N. Y. Bids May 23. CD 7/19, under LB.

▲ **Hudson Cement Corp.**, c/o Colonial Sand & Stone Co. Inc., 1740 Broadway, New York 19, N. Y., Separate Contracts, **$1,500,000**, cement plant, KINGSTON, N. Y. Soper Engrs. S. A., Franklin, N. C., engrs.

▲ **Diesel Constr. Co.**, 625 Madison Ave., New York 22, N. Y., CA Est. **$5,000,000.** 30 story office bldg., 200 E. 42nd St., east side of 3rd Ave. from 41 to 42nd Sts., NEW YORK, N. Y. Joseph Durst, 205 E. 42nd St., New York 17, N. Y. Emery Roth & Sons, 575 Madison Ave., New York, Zone 22, archts.

▲ **Harbor Terrace Co. Inc.** (Nassau Management Co.) 2 Park Ave., New York, N. Y., Separate contracts, **$3,300,000.** five 5-story brick 275 unit APARTMENTS buildings on Water, Front, Rector and Smith streets as Willocks Redevelopment, PERTH AMBOY, N. J. Bids Aug. 15. CD 8/7.

PROJECTS COVERED

By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterways $44,000; other public works $73,000; industrial buildings $93,000; other buildings $344,000. Also Foreign projects of $100,000 and more in size of interest to American contractors.

By Regions & Classes of Construction

(In order of Listing)

BIDS ASKED
LOW BIDDERS
CONTRACTS AWARDED

New England	**Middle West**
Middle Atlantic	**West of Mississippi**
South	**Far West**

PROPOSED WORK

Water Supply	**Public Buildings**
Sewers, Waste Disposal	**Mass Housing**
Bridges	**Commercial Buildings**
Streets & Roads	**Industrial Buildings**
Earthwork, Waterways	**Unclassified**

In These Stages

PROPOSED WORK: Before and including appointment of engineers or architects.
BIDS ASKED: BA (new announcements only). For full calendar, see also preceding issues.
SOON LETS CONTRACT: SLC

LOW BIDDERS: LB On jobs below $500,000 in value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: CA Except awards to low bidders previously reported in low bidder stage.

CD dates shown are of Construction Daily Issue in which last previous report was published.

OWNERS, ENGINEERS, ARCHITECTS, CONTRACTORS are invited to report their new jobs for listing in these reports when they meet or exceed the size minimums shown above. Address these news releases to J. A. Mahoney, REPORTS, ENGINEERING NEWS-RECORD, 330 W. 42 St., New York 36, N. Y.

Symbols and Abbreviations Include:

†	Federal Government
▲	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Construction Daily

For additional reports see Construction Daily.

▲ **Fred J. Brotherton, Inc.**, 185 Atlantic St., Hackensack, N. J., CA **$2,767,827** (32 bidders) COURT HOUSE ANNEX, Bergen County, HACKENSACK, N. J. Bd. Chosen Freeholders, Bergen Co., Hackensack, N. J. Bids June 26. CD 7/3, under LB.
Lafayette Iron Wks., 649 Grand St., Jersey City, N. J., CA **$513,000**, steel and iron (Hackensack, N. J.).

▲ **United Constr. Co.**, 1204 Lincoln Ave., Pittsburgh, Pa., LB **$1,303,000** (3 bidders) general construction secondary SCHOOL for Neshannock Twp. School Dist., NEW CASTLE, PA. Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Aug. 15. CD 7/25.

▲ **Gamble & Gamble Constr. Co.**, Bolivar, Pa., LB **$1,130,950** general construction, junior-senior high SCHOOL, Portage Joint Schools, PORTAGE, PA. Pa. Pub. School Bldg. Auth., 101 S. 25 St., Harrisburg, Pa. Bids Aug. 13. CD 7/11.

▲ **James Keelty & Co. Inc.**, 5716 York Rd., Baltimore 12, Md., Separate Contracts, **$1,372,000**, 97 brick HOUSES, Thornleigh Development, BALTIMORE, MD.

▲† **Volpe Constr. Co.**, 1507 M St. N.W., Wash., D. C., CA **$2,734,000**, Alternate A & B, AEC HEADQUARTERS ADDN., GERMANTOWN, MD., Atomic Energy Comn., 1717 H St., N. W., Wash., D. C. CD 8/16, under LB.

▲ **Hicks-Tate Inc.**, 5019 York Rd., Baltimore 12, Md., CA $1,027,939, 1 and 2 story, masonry, brick, concrete, steel, block, Pleasant Plains Elementary SCHOOL, TOWSON, MD., Baltimore Co., Bd. Educ., Aigburth Rd., Towson 4, Md. Border & Donaldson, 2517 St. Paul St., Baltimore 2, Md., archts. Bids July 30. CD 8/7, under LB.

▲ **Turner Constr. Co.**, 150 E. 42 St., New York, N. Y., CA Est. **$2,000,000.** OFFICE, WASH., D. C. Government Employees Insurance Co., 14 and "L" Sts. N.W., Wash., D. C. Vincent G. Kling, 917 Corinthian Ave., Phila., Pa., archt.

▲ **Robino Homes Co. Inc.**, Marshallton, Wilmington, Del., Separate Contracts. **$4,000,000.** 365-unit RESIDENTIAL DEVELOPMENT, swimming pool and tennis courts, WILMINGTON, DEL. Howard Greenhose, New Castle, archt.

SOUTH

BUILDINGS—BA

▲ **Miss., Columbus**—HOUSING—BA 9/18—Columbus Housing Auth., City Hall, Columbus, 120-low rent housing units, $1,200,000. Plans deposit $100. Gilliam I. Rosamond, Propst Bldg., Columbus, archts. CD 10/9/56.

▲ **Fla., Fort Lauderdale**—SCHOOL—BA 9/19—Bd. P. Instruction, 1320 S.W. 4 Ave., Fort Lauderdale, McArthur High School, 6501 Hollywood Blvd., $1,000,000. Start & Moeller, 1823 Mayo St., Hollywood, archts. D. E. Britt Assocs., 309 S.E 9 Ave., Ft. Lauderdale, struc. engrs. J. E. Curley & Assocs., 238 Plaza Bldg., Miami, mech. engrs. CD 8/16.

HEAVY CONSTRUCTION—LB & CA

▲ **Blount Bros. Constr. Co.**, Bell Bldg., Montgomery, Ala., CA **$1,453,531**, TRANSIT SHED, concrete platform and electrical sys., Berths 3, 4 and 5 of Marginal Wharf for Dpt. State Docks and Terminals, MOBILE, ALA. Alabama State Docks Dpt. at Office Ward, McFarland, Dir., State Office Bldg., Mobile, Ala. Bids May 28. CD 7/11, under LB.

▲ **J. A. Jones Constr. Co.**, Box 1818, Shreveport, La., LB **$5,595,000** (4 bidders) 2 story and 3rd floor portion, concrete, steel TERMINAL bldg., and West pier, Moisant International Airport, Kenner, NEW ORLEANS, LA. City, Civic Center, New Orleans, La. Bids Aug. 17. CD 8/6.

BUILDINGS—LB & CA

▲ **Southeastern Constr. Co.**, 301 W. 2 St., Charlotte, N. C., CA **$8,000,000**, 5 story OFFICE bldg., and 4 story laboratory, SOUTH CHARLESTON, W. VA., Carbide & Carbon Chemical Corp., 30 E. 42 St., New York, N. Y. Bids June 5. CD 11/15/56.

▲ **T. A. Loving & Co.**, Bank of Wayne Blvd., Goldsboro, N. C., CA **$1,296,385**, HOUSING Projs. 19-3 and 19-4 ROCKY MOUNT, N. C. Rocky Mount Housing Auth., Rocky Mount, N. C. Bids June 18. CD 7/8, under LB.

▲ **Daniel Constr. Co.**, 429 N. Main St., Greenville, S. C., CA est. **$38,000,000**; PLANT to mfg. semi-bleached wood pulp, CATAWBA, S. C. Bowaters-Carolinas Corp., Catawba, S. C.

▲ **Boyle Constr. Co.**, Sumter, S. C., CA **$1,400,000**; structural SCIENCE bldg., CLEMSON, S. C. Clemson Agricultural College, Clemson, S. C. Bids July 31. CD 8/9, under LB.

▲ **Thompson Street**, 2622 Piedmont Rd. N. E., Atlanta, Ga., CA **$1,358,000.** State CAPITOL alterations and renovations, ATLANTA, GA. Secy. of State, State Capitol, Atlanta, Ga. Bids Aug. 1, awarded Aug. 12. CD 8/12, under LB.

▲ **Dalon Contg. Co.,** 2192 Cheshire Bridge Rd. N.W., Atlanta, Ga., CA $3,750,000. general service HEADQUARTERS, ATLANTA, GA. Georgia Power Co., 52 Fairlie St. N.W., Atlanta, Ga. Stevens & Wilkinson, 157 Luckie St. N.W., Atlanta, archts. Awarded Aug. 17.

▲ **Southern Builders, Inc.,** 3355 Poplar Ave., Memphis, Tenn., CA $1,565,796, RESEARCH bldg., Clover Bottom Home for the Feeble-minded for severely brain damaged patients, NASHVILLE, TENN. State Bldg. Commission, Nashville, Tenn. Bids June 25. CD 7/8, under LB and city of Memphis.

MIDDLE WEST

HEAVY CONSTRUCTION—LB & CA

▲ **OHIO**—State Hy. Dpt., Columbus,
S. J. Groves Co., Wesley Temple Bldg., Minneapolis, Minn. LB $2,837,686, est. $3,109,000. c. conc. 4.2 mi. section of North-South Freeway, Wayne Co. Bids Aug. 20. CD 7/30.

▲ **City,** Dpt. P. Service, City Hall, Cleveland, 14, O., contract cancelled, Ridge Rd. Incinerator, CLEVELAND, O., CA $2,495,000. Will re-advertise. CD 6/12, under CA.

▲ **Mount Vernon Bridge Co.,** Mount Vernon, O., LB $2,232,000. est. $3,000,000. Plans deposit $25. superstructure of 1,620 ft. railroad bridge consisting of river and approach piers, including vertical 310 ft. lift section on Illinois River incl. lift span machinery, etc. at Valley City, Ill. ILLINOIS. Wabash Railroad Co., Wm. J. Hedley, ch. engr., 1420 Railway Exchange Bldg., St. Louis 1, Mo. Bids Aug. 15. CD 7/18.

▲ **E. J. Albrecht Co.,** 2626 W. 26th St., Chicago, Ill., CA $1,226,625, railroad bridge over Calumet Sag Channel, 22 mi. S. of Chicago, ILLINOIS. Gulf Mobile & Ohio RR, 104 St. Francis St., Mobile, Ala. Bids Apr. 23. CD 4/30, under LB.

▲ **Robert A. Black Inc.,** 13912 Halsted St., Riverdale, Ill., LB $308,258, repaving 25th Ave. from 22nd to Roosevelt Rd. in Broadview, CHICAGO, ILL., Cook Co., County Bldg., Chicago, Ill.;
Crowley-Sheppard Asphalt Co., 1412 W. Altgeld Ave., Chicago, Ill., LB $662,151, wid'n. 2.9 mi. of 79th St. from Keating Ave. to Western Ave., etc., (Chicago, Ill.).
Thomas Madden Co., 4612 W. Van Buren St., Chicago, Ill., LB $574,450, grading Austin Blvd. to Central Ave., (Congress St. Expressway), (Chicago, Ill.).
Kenny Constr. Co., 3220 Oakton, Skokie, Ill., LB $1,088,865, (South Rte. Expressway), main drain, 72nd St. to 83rd St., (Chicago, Ill.).
John Doherty Co., 9824 So. Genoa, Chicago, Ill., LB $485,384, (South Rte. Expressway), main drain, 83rd St. to 89th Pl., (Chicago, Ill.).

▲ **Arcole Midwest Corp.,** 3225 Main St., Skokie, Ill., LB $1,552,587, grade separation 31st Street-Cicero Ave. to Kostner St.; bridge over Kilbourn Ave. and Chicago Belt Line Railway, Cicero, CHICAGO, ILL., Cook Co., County Bldg., Chicago, Ill.;
James McHugh Co., 6449 S. South Park Ave., Chicago, Ill., LB $621,436, four pedestrian bridges over Congress St. Expressway at Lavergne, Kildare, Springfield and Albany Aves., (Chicago, Ill.).
Mayfair Constr. Co., 5660 N. Kedzie Ave., Chicago, Ill., LB $535,358, grade separation between Ontario & Ohio Sts., NW Expressway-Halsted St. (Chicago, Ill.).
Marquette Constr. Co., 5667 N. Milwaukee Ave., Chicago, Ill., LB $85,797, Hintz Road bridge from Wolf Rd. to Milwaukee Ave. over Chicago, Minneapolis & Sault Ste. Marie RR and Wheeling drainage ditch. (Chicago, Ill.).

▲ **W. L. Sheppard & Co.,** 1412 Altgeld St., Chicago, Ill., CA $2,259,767, grading and conc. paving Northwest Superhighway from W. Van Buren to W. Madison St., CHICAGO, ILL. City, City Hall, Chicago, Ill. CD 8/12, under LB.

▲† **Hoyle-Newberg Constr. Co.,** Iron Mountain, Mich., CA est. $5,000,000. sags aircraft warning center. K. I. Sawyer Air Force Base, MARQUETTE, MICH. U. S. Eng., 600 E. Jefferson Ave., Detroit 26, Mich. CD 8/21/56.

BUILDINGS—LB & CA

▲ **Dunlop & Johnston Inc.,** 1950 Lee St., Cleveland, O., CA $3,477,199. 404-dwelling units, Garden Valley HOUSING Project, CLEVELAND, O. Cleveland Metropolitan Housing Auth., 1325 W. 28 St., Cleveland 13, O. Bids July 18, awarded Aug. 16. CD 7/26, under LB.

▲† **U. S. Eng.,** Procurement Officer, Lockburne Air Force Base, Columbus, O., cancelled bids to have been opened about June 20, 400-units, Capehart HOUSING, Lockbourne Air Force Base, COLUMBUS, O. est. $6,500,000. CD 4/26, under Airports.

▲ **Dr. Francis A. Sowin,** 6268 Wilson Mills Rd., Mayfield Heights, O., Own Forces. $3,500,000. 100 HOME Project known as Fairmount Park off Fairmount Blvd. about 2 mi. east of Hunting Valley, GEAUGA LAKE, O. Henry Grieme, 33 River St., Chagrin Falls, archt.

▲ **Melbourne Constr. Co.,** Mellett Bldg., Canton, O., LB $1,465,000. general contract, Washington High SCHOOL ADDN., MASSILLON, O. Massillon Bd. of Educ., Massillon O. Bids Aug. 10. CD 7/11.

▲ **Leonard Constr. Co.,** 37 S. Wabash Ave., Chicago, Ill., CA $1,500,000, 1 150,000 sq. ft. story brick, conc., mill house and pipe PLANT, South side Irving Park Road, ½ mi. W. of Manheim Road, BENSENVILLE, ILL. James B. Clow & Sons Co. Inc., 201 N. Talman Ave., Chicago, Ill.

▲ **Inland Constr. Co., Inc.,** 222 W. Adams St., Chicago, Ill., CA $3,500,000. 2 story, brick, 110,000 sq. ft. DEPARTMENT STORE, 35th St. and South Parkway, CHICAGO, ILL. New York Life Insurance Co., 51 Madison Ave., New York, N. Y. Loebl Schlossman & Bennett, 333 N. Michigan Ave., Chicago, archts.

▲ **H. J. Ferguson,** 1783 E. 11 St., Cleveland, O. CA Est. $3,250,000, engineering and research LABORATORY, HARVEY, ILL. Allis Chalmers Mfg. Co., Buda Works, 1126 S. 70 St., Milwaukee, Wis. CD 8/14.

▲ **Larsen & Larsen,** 2455 Mason St., San Francisco, Calif., CA $3,000,000, 200,000 sq. ft. glass container PLANT, 45 mi. from Chicago, PLAINFIELD, ILL. Continental Can Co., Hazel-Atlas Glass Div., 228 N. LaSalle St., Chicago, Ill. A. Epstein & Sons, 2011 W. Pershing Rd., Chicago, engrs.

▲ **Herlihy Mid-Continent Co.,** 135 S. LaSalle St., Chicago, Ill., CA est. $2,800,000. OFFICE bldg., JACKSON, MICH. Consumers Power Co., Dan E. Karn, pres., Jackson, Mich. Giffels & Vallet Inc., and L. Rossetti, 1000 Marquette Bldg., Detroit, Mich., archts.-engrs.

▲ **Cranbrook Constr. Co.,** 18166 James Couzens, Detroit, Mich., Owner Builds, $2,900,000. Birchwood Park HOUSING Development, Five Mile Rd. and Hubbard St., LIVONIA, MICH.

▲ **Gordon Williamson Co.,** 19180 Grand River, Detroit, Mich., Owner Builds, $1,100,000, 65 brick, split level HOMES, North Milford Rd., Summit St. and Commerce St., MILFORD, MICH.

▲ **Gateway Bldg., Co.,** 410 North Woodward St., Royal Oak, Mich., Owner Builds, $3,750,000, 225 brick HOMES Gateway Subdivision, TROY, MICH.

▲ **Rose-Hill Realty Co.,** 19470 Grand River, Detroit, Mich., Owner Builds, $2,200,000, Bay Pointe Estates, HOMES Lake Oakland, Dill Rd., WATERFORD, MICH.

WEST OF MISSISSIPPI

HEAVY CONSTRUCTION—BA

▲ **Mo., St. Louis**—BA 9/17—City, Frank Kriz, acting pres., Bd. P. Service, City Hall, 12th Blvd. and Market St., St. Louis, Zone 3, 15 mi. of 78-in. welded steel water mains to be installed between Chain of Rocks Water Works Pumping Station to Bissell's Point Station and second section to Baden pumping station to connect with existing distribution lines $4,650,000. pipe only CD 4/25.

▲ **Tex., Houston**—WHARF—BA 9/18—Port Comm., Navigation Dist., 1519 Capitol St., Houston, Wharf No. 20, $1,028,376 transit shed No. 1, $300,000; Date changed. Rob. J. Cummins, Bkrs. Mtg. Bldg. and Lockwood Andrews & Newman, 1010 Waugh St., Houston, Tex., engrs. CD 8/8.

BUILDINGS—BA

▲ **Tex., Callallen**—POWER PLANT—BA 9/3—Central Power & Light Co., 120 N. Chaparrel St., Corpus Christi, Lon C. Hill electric power plant incl. 175,000 kil. generating unit addn. $12,000,000. CD 8/12.

▲ **Tex., Fort Worth**—HOSPITAL—BA 9/5—St. Joseph's Hospital, 1401 S. Main St., 5 story to present hospital addn. $3,000,000. Plans deposit $50. Joseph R. Pelich, 1203 Trans American Life Bldg., Fort Worth, archts. CD 8/13, under LB.

HEAVY CONSTRUCTION—LB & CA

▲ **R. H. Fulton & Co.,** 2323 Erskine Rd., Lubbock, Tex., CA $3,028,000; laying 81 mi. 18-in. and 13 mi. 20-in. gas line in Pampa Gray Counties to area Dumas in Moore Co., Tex. CA $1,080,000; 27 mi. 34-in. gas pipe line near Winslow, Ariz., TEXAS AND ARIZONA. El Paso Natural Gas Co., c/o El Paso Natural Gas Co. Bldg., El Paso, Tex. CD 2/5/53.

▲ **H. B. Zachry Co.,** Construction Div., Box 10188, San Antonio, Tex., CA $1,789,000; crude line, 24 mi. 20 in. 83 mi. 16 in., 20 mi. 12 in. lines to be between Clyde and Corsicana, TEXAS. Magnolia Petroleum Co., Magnolia Bldg., Dallas, Tex., CD 1/25/54.

O. R. Burden Constr. Corp., 6702 E. 21 St., Tulsa, Okla., CA 1,691,000; 120 mi. 16 in. 4 mi. 12 in. crude lines, between Midland and Clyde Tex., (Texas).

BUILDINGS—LB & CA

▲† **J. W. Bateson Co.,** Gibralter Life Bldg., Dallas, Tex., LB $21,600,000, est. $21,430.000. (2 bidders). 2,372 units Capehart HOUSING, FORT LEONARD WOOD, MO. U. S. Eng., 1800 Federal Office Bldg., Kansas City 6, Mo. Bids Aug. 15. CD 7/30.

▲ **Ernest Vermillion,** 2813 E. 85th St., Kansas City, Mo., CA $1,672,429, est. $1,500,000, 2 story, semi-bsmnt., Junior Senior High SCHOOL, HICKMAN MILLS, MO. Bd. Educ., Consolidated Dist. No. 1, Hickman Mills, Mo. Frangkiser & Hutchens 7926 State Line, Kansas City, Mo., archts.

▲ **Sharp Bros. Contracting Co.,** 1014 E. 19 St., Kansas City, Mo., LB $1,117,940, est. $1,000,000, 2 & 4 story HOSPITAL bldg. addn., and 150-car parking lot, etc., JEFFERSON CITY, MO., Memorial Hospital Bldg. Comn., c/o Ralph Hammond chn., Jefferson City, Mo. Bids Aug. 8. CD 8/5.

▲ **Roy Scheperle Constr. Co.,** 527 Madison St., Jefferson City, Mo., CA $1,204,065, est. $1,000,000, 2 & 4 story HOSPITAL BLDG. ADDN., and 160-car parking lot, etc., JEFFERSON CITY, MO. Memorial Hospital Bldg., Comn., c/o Ralph Hammond chn., Jefferson City, Mo. Bids Aug. 8. CD 8/19, under LB.

(Continued on page 68)

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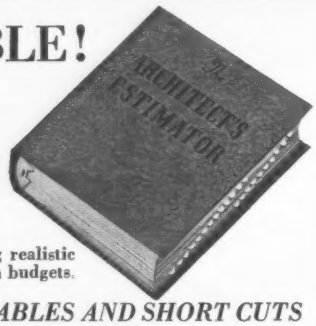

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AURORA, ILLINOIS, U.S.A.

(Continued from p. 66)

▲† **H. K. Ferguson Co.**, 1783 E. 11 St., Cleveland, O. LB $3,890,000, est. $4,000,000. third phase of Navy-Callery Chemical PLANT for Dpt. of Navy, MUSKOGEE, OKLA. Callery Chemical Co., sub. Mine Safety Appliance Co., 201 N. Braddock St., Pittsburgh, Pa. CD 12/20/56.

▲ **Harmon Constr. Co.**, 200 S. Indiana St., Oklahoma City 3, Okla. CA $1,692,900. Muskogee General HOSPITAL, MUSKOGEE, OKLA. City, City Hall, Muskogee, Okla. Bids July 31. Carnahan & Thompson, Oklahoma National Bldg., Oklahoma City, engrs. CD 7/17.

▲ **Wiseco Processing Plant, Inc.**, c/o Owners, CA $1,750,000; gas processing PLANT, BRIDGEPORT, TEX. Christie, Mitchell & Mitchell Co., Houston Club Bldg., Houston, Tex. CD 8/21.

▲ **Suntide Refining Co.**, Viola Rd., Corpus Christi, Tex., Owner builds. $1,750,000; 7,500-bbl. daily capacity, UDEX UNIT for separation of Aeromatics and misc. chemicals, CORPUS CHRISTI, TEX. CD 4/9.

▲ **Aubra Sharp Developer**, 124 E. Main St., Grand Prairie, Tex. Owner Builds. $383,125; 24 DWELLINGS, $370,000; 22 dwellings, $349,500; 18 dwellings, Freetown and South Belt Line Rds., GRAND PRAIRIE, TEX. CD 5/29.

▲ **Hill & Combs**, 312 Melrose St., San Antonio, Tex., CA $1,750,000; SHOPPING CENTER on Austin Hy. adjoining Terrell Heights, SAN ANTONIO, TEX. L. R. Pietz & Assocs., c/o South Texas Bldg., San Antonio, Tex. CD 4/18/56.

▲ **Clanahan Constr. Co.**, Box 567, Tyler, Tex., CA $1,536,111; HIGH SCHOOL TYLER, TEX. Tyler Independent School Dist., Tyler, Tex. Grand total $1,998,896. Bids Aug. 6. CD 8/14, under LB. **Natkin & Co.**, 5639 Dyer St., Dallas, Tex., CA $462,785; mechanicals (Tyler, Tex.)

▲ **Eitze-Kitchens Co.**, P.O. Box 3116, Austin, Tex., LB $1,118,100; base bid. HOSPITAL ADDN., WICHITA FALLS, TEX. Bd. for Texas State Hospitals & Special Schools, c/o Dr. J. A. Bethea, Exec. Dir., 4405 Lamar St., Austin, Tex. Bids Aug. 15. CD 7/30.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., Laguna Beach**—BA 9/18—City Council, City Hall, 505 Forest Ave., addnl. sewage disposal facilities $1,300,000. Plans deposit $25. James M. Montgomery, 535 E. Walnut St., Pasadena, engr. CD 9/27/56.

BUILDINGS—BA

▲ **Utah, Logan**—DORMITORIES—BA 9/10—Utah State Bldg. Bd., J. G. King Supt., 419 State Capitol Bldg., Salt Lake City, dormitory facilities, University of Applied Arts, $1,700,000. Grix Mueller & Plowgian, 3930 Riverdale Rd., Ogden, archts. CD 7/6/56, under State Agricultural College.

▲ **Calif., San Diego**—LIBRARY ADDN.—BA 9/18—State Div. Architecture, 1120 N St. Sacramento, 3 story and ground floor, rein.-con. library addn., San Diego State College, $1,267,750. Plans deposit $50. CD 4/24/56.

▲ **Calif., Los Angeles**—PHYSICAL EDUCATION—BA 9/25—State Div. Architecture, 1100 S. Grand Ave., Los Angeles, 100,000 sq. ft. physical education bldg., Los Angeles State College of Applied Arts and sciences, San Bernardino Freeway Campus, W.O. 3719GC-38. $1,822,950. Plans deposit $75. CD 7/25.

▲ **Utah, Monticello**—PLANT—Bids Asked—Texas Co., 720 San Jacinto, Houston, Tex., gasoline plant to be built in four corners area near here,$6,000,000-$12,000,000. CD 8/19.

HEAVY CONSTRUCTION—LB & CA

▲ **CALIFORNIA**—State Div. Hys., 1120 N. St., Sacramento,

Guy F. Atkinson Co., 10 West Orange Ave., South San Francisco, Calif., CA $5,748,745; grading and surf. 8-lane roadway for 3.6 mi. on San Diego Freeway in Culver City and Los Angeles between 0.2 mi. south of Venice Blvd. and 0.3 mi. north of Ohio Ave., 8 bridges 1 pedestrian undercrossing and 12 retaining walls, Los Angeles Co. Bids July 27, awarded Aug. 13. CD 7/29, under LB.

▲† **M. H. Hasler Constr. Co. and S. W. Case Corp.**, 458 S. Spring St., Los Angeles, Calif., LB $1,556,014 Sch. A; LB $1,531,598 Sch. B alternate, (13 bidders), Robles Diversion Dam and Robles Casitas Diversion Canal, Ventura Proj. Spec. DC 4937, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Oak View, Calif. Bids Aug. 15. CD 7/3.

▲ **M. H. Golden Constr. Co.**, 3485 Noell St., San Diego, Calif., CA $1,365,000; extending RUNWAY 18-36, Naval Air Station, North Island, Spec. 7483-56, SAN DIEGO, CALIF, Eleventh Naval Dist., 1220 Pacific Hy., San Diego, Calif. Bids May 28, awarded Aug. 15. CD 8/27/56.

BUILDINGS—LB & CA

▲† **Valcon Inc.**, 895 Broadway, El Centro, Calif. LB $3,186,855 (7 bidders) 209 units Capehart HOUSING. Yuma Test Station, ENG-04-353-57-2; YUMA, ARIZ. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Aug. 7. CD 7/26.

▲ **William C. Crowell, Inc.**, 170 E. California St., Pasadena, Calif. LB $1,769,900. Glendora High SCHOOL, Glendora, AZUSA, CALIF. Citrus Union High School Dist., 18824 E. Foothill Blvd., Azusa, Calif. Bids Aug. 6. CD 7/26, under LB.

▲ **Dinwiddie Constr. Co.**, 210 Crocker Bldg., San Francisco, Calif., LB $2,815,000; (7 bidders) 7 story with basement and 2 story wing, 140,500 sq. ft., ADMINISTRATION bldg., BERKELEY, CALIF. University of California Bd. Regents, Administration Bldg., Berkeley, 7, Calif. Bids Aug. 13. CD 8/7.

▲ **Fluor Corp. Ltd.**, 250 S. Atlantic Blvd., Los Angeles, Zone 22, Calif., CA est. $6,000,000-$7,000,000. design and construct 4,000 kv steam electric generating PLANT, BURBANK, CALIF. City Pub. Service Dpt., 164 W. Magnolia Blvd., Burbank, Calif. CD 3/13.

▲† **George A. Fuller Co.**, 310 W. 8th St., Los Angeles, Calif., CA $10,499,691; est. $14,000,000; 800-units title VIII Housing, Camp Cooke Air Force Base, LOMPOC, CALIF. Air Force Base Ballistic Missile Div., Air Research & Development Command, P. O. Box 262, Inglewood, Calif. Bids Aug. 6. CD 8/8, under LB.

† **Morley Constr. Co.**, 7700 Sunset Blvd., Los Angeles, Calif., CA $2,897,000; Mount Gleason JUNIOR HIGH SCHOOL, Tujunga, LOS ANGELES, CALIF. Los Angeles Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids July 12, awarded Aug. 15. CD 7/24, under LB.

▲ **Ralph M. Parsons Co.**, 617 S. Olive St., Los Angeles, Calif. CA Est. $4,000,000. design and construct facilities to house the materials TESTING REACTOR at new Vallecitos Atomic Laboratory, PLEASANTON, CALIF. General Electric Co., River Rd., Schnectady, N. Y. CD 5/29.

▲† **Murray-Sanders Co.**, 2116 S. Main St., Santa Ana, Calif. LB $4,185,000; (6 bidders) 360-units Capehart Housing Point Mugu, NBy-CH-14852; POINT MUGU, CALIF. P. Wks. Office, 11th Naval Dist., San Diego, Calif. Bids Aug. 15. CD 7/23.

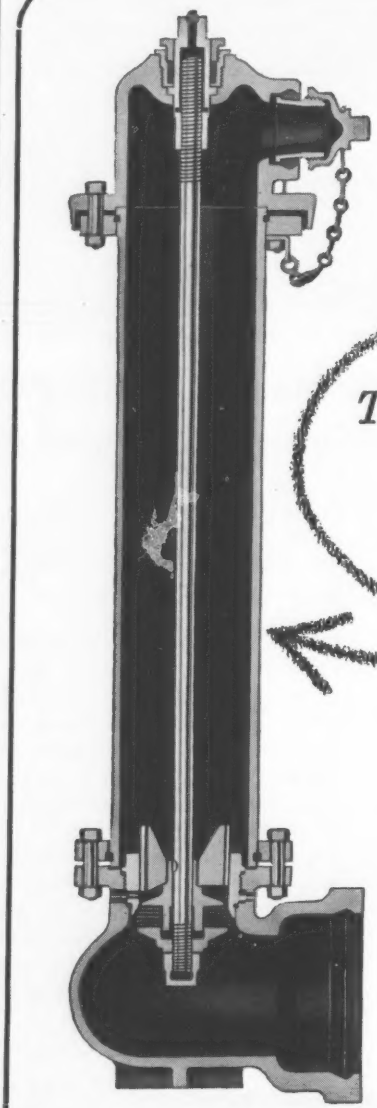
▲ **Hacienda Plaza**, 17759 E. Valley Blvd., Puente, Calif., Owner Builds. $1,042,000. 145 DWELLINGS, PUENTE, CALIF.

▲ **Crocker Constr. Co.**, 1296 Market St., Yuba City, Calif., CA $1,069,150; 1 story, 34,000 sq. ft. rein.-con. Fremont HOSPITAL, YUMA CITY, CALIF. Fremont Hospital, 815 Plumas St., Yuba City, Calif. Bids Aug. 6. CD 8/12, under LB.

LATIN AMERICA

BUILDINGS—LB & CA

▲ **Inocenti S. G.**, Milan, Italy, CA Est. $100,000,000. orinoco steel PLANT, VENEZUELA, Government of Venezuela, Caracas, Venezuela. Ramsey & Miller, 11 W. 42 St., New York, N. Y., U. S. A., engrs.



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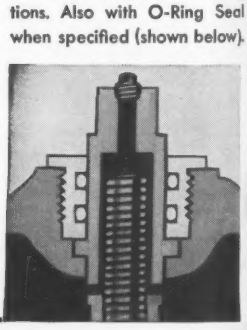

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **ALBERTA**—Alberta Govt., Parliament Bldgs., Edmonton, Dunvegan Contractors, 10325 61 Ave., Edmonton, Alta., CA $1,949,005, steel suspension bridge, steel girder approaches with rein.-con. deck and substructure over Peace River at Dunvegan. Bids July 10, awarded Aug. 14. CD 5/24.

▲ **Alberta**—Dpt. of Hys., Parliament Bldgs., Edmonton, Western Constr. & Lumber Co. Ltd., 11111 105 Ave. and Coleman Colliers Ltd. and Square M Constr. Ltd., 10325 61 Ave., Edmonton, Alta., CA $1,949,005 (3 bidders) steel suspension bridge over Peace River at Dunvegan. Bids July 10, awarded Aug. 12. CD 5/31.

▲ **Foundation Co. of Canada Ltd.**, 1900 Sherbrooke St. W., Montreal, Que. CA $2,033,778 (6 bidders) wharf exten. at Sections 94 to 96, Montreal Harbor, MONTREAL, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Bids June 27, awarded Aug. 12. CD 7/15, under LB.

▲ **Canit Constr. Co. Ltd.**, 507 Place d'Armes, Montreal, Que. CA $2,065,705. wharf at sections 62 to 65 Montreal Harbor, MONTREAL, QUE. National Harbors Bd., West Block, Parliament Bldgs., Ottawa, Ont. Bids July 18, awarded Aug. 13. CD 7/24, under LB.

▲ **A. Janin & Co. Ltd.**, 1460 Sherbrooke S. W., Montreal, Que. CA $3,236,490. Section V, about 7,000 ft. Metro Boulevard Expressway from Iberville St. to point east of Pie IX Blvd., MONTREAL, QUE. Montreal Metropolitan Commission, 506 St. Catherine St. E., Montreal, Que. Bids Aug. 14, awarded Aug. 16. CD 8/20, under LB.

BUILDINGS—LB & CA

▲ **Atlas Constr. Co., Ltd.**, 4781 St. Catherine St. W., Montreal, Que., LB $1,512,000 (12 bidders) CUSTOMS bldg., ST. JOHN, N. B. Dpt. P. Wks., Hunter Bldg., Ottawa, Ont. Bids July 17. CD 6/10.

▲ **Karl Just**, Elliot Lake, Ont., CA Est. $1,900,000. 153 HOUSES at uranium mining camp, ELLIOT LAKE, Ont., Stanleigh Bldg. Corp., 85 Richmond St. W., Toronto, Ont. Awarded Aug. 12.

▲ **Pigott Constr. Co. Ltd.**, Pigott Bldg., Hamilton, Ont. CA Est. $1,300,000. nuclear REACTOR bldg. and nuclear research bldg. addn., HAMILTON, ONT. Hamilton College of McMaster University, Hamilton, Ont. Interested: Atomic Energy of Canada Ltd., Ottawa, and Hydro Electric Power Comn., of Ontario, 620 University Ave., Toronto, Ont. Bids July 24. CD 7/19.

▲ **Louis Donolo Inc.**, 8320 St. Lawrence Blvd., Montreal, Que., CA $1,000,000. superstructure for 72-suite APARTMENT, McGregor St., MONTREAL, QUE. McGregor Tower c/o Mayerovitch & Bernstein, archts., 1500 St. Catherine St. W., Montreal, Que. Irving S. Backler, 5253 Decarie Blvd., Montreal, engr. CD 1/23/56.

▲ **Parkdale Home Development Corp.**, 630 Dorchester St. W., Montreal, Que., Owner Builds, $3,000,000. sixty-three 7-suite each, 3 story 30x60 ft., wood, brick APARTMENT BLOCKS, Granby St., MONTREAL, QUE. Gabriel Jarry, 7271 Querbes Ave., Montreal, archt. CD 2/4/55.

▲ **Duroc Constr. Inc.**, 5126 Park Ave., Montreal, Que. CA $4,500,000. SCHOOL, music school, etc., Mount Royal Blvd., MONTREAL, QUE. Sisters of the Holy Names of Jesus and Mary, 1420 Mount Royal Blvd., Montreal, Que. Felix Racicot, R. R. 4, Sorel, archt. Awarded July 29.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Vitro Eng. Co.**, Div. Vitro Corp. of America, 261 Madison Ave., New York 16, N. Y., U.S.A., CA Est. $46,400,000. design and construct, 500,000 kilowatt (thermal) nuclear POWER STATION near here, ROME, ITALY. Societa Italiana Meridionale Energia Atomica, operating subsidiary of AGIP Nucleare an Italian Agency, Rome, Italy.

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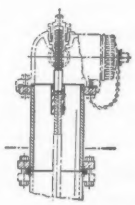

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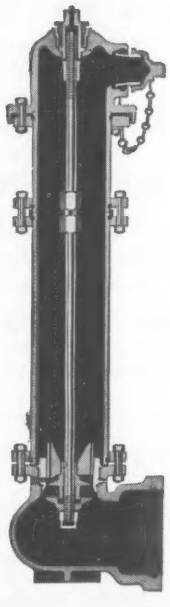

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PROPOSED PROJECTS

WATER SUPPLY

▲ **Conn., Milford**—Milford Water Co., 49 River St., Milford, larger pump at Maltby Lakes, larger watermains, new pumping station, erecting new standpipes, Milford, Orange and West Haven. $2,000,000. Joseph A. Novaro, ch. engr.

Kan., Lawrence—City, City Hall, water sys. imprvs. $608,000.

Mo., Altenburg—Town, Town Hall, voted $700,000 bonds, water works and distribution sys. etc., $700,000.

Utah., Kanab—City, City Hall, water sys. imprvs. and addns. $483,000.

SEWERS, WASTE DISPOSAL

▲ **O., Painesville**—City, City Hall,, $1,094,000 bond election No. 5, storm sewers, est. $3,283,830. Bond issue amount reduced. CD 6/28.

BRIDGES

▲ **Illinois-Missouri**—City, City Hall, Alton, Ill., automobile and pedestrian bridge across Mississippi River between Illinois and Missouri about a mile south of present Lewis and Clark bridge, $5,000,000.

▲ **New York and New Jersey**—Port of New York Authority, 111 Eighth Ave., New York 11, N. Y. 6-lane lower deck George Washington Bridge over Hudson River. $167,000,000; O. H. Ammann, c/o Ammann & Whitney, 111 8th Ave., New York, N. Y., consult. engr. CD 7/24.

▲ **N. Y., Elmhurst**—President, Queens Boro, Boro Hall, Kew Gardens, grade separation, Queens Blvd. and Grand Ave., Proj. PQ 85, $1,100,000. CD 9/10/45.

▲ **O., Cleveland**—Cuyahoga Co. Comrs., Court House, Cleveland, Zone 13, 1,800 ft. elevated structure, overpass on W. 140 St. over CTS Rapid and New York City RR tracks $2,145,000; Lakewood Heights Blvd. overpass over CTS West side Rapid Transit extension and New York City RR tracks, $1,536,000; Howard Needles, Tammen & Bergendoff, 1805 Grand St., Kansas City, Mo., consult. engrs., Albert S. Porter, Standard Bldg., Cleveland 13, O., co. engr. Constr. in summer 1958.

STREETS AND ROADS

▲ **Calif., Stockton**—City, City Hall, $6,702,000 bond election Oct. 8, street imprvs. and flood control $6,702,000.

▲ **MICHIGAN**—State Dpt. Hy., John C. Mackie, SHC, Stevens T. Mason Bldg., Lansing,

Bay Co.—reconstr. M-25 from M-15 east in Bay City, $300,000.

Oakland Co.—grading, surf. 4-lanes, 4 mi. on M-24 to incl. Perry Street Bridge, Pontiac, $1,550,000.

Saginaw Co.—grading, surf., wid'n. US-10 section of new constr. along relocation of US-10, $1,420,000.

Washtenaw Co.—widening part of M-17, Ann Arbor, $29,000.

Wayne Co.—resurf. M-150 and widening US-25, Detroit. State Proj. $158,000.

conc. paving on US-10, Highland Park, $300,000.

▲ **New York**—President Queens Boro, Boro Hall, Kew Gardens, Broad Channel imprvs., hys., etc., Proj. PQ 168. $2,840,000. Constr. after 1960.

EARTHWORK, WATERWAYS

▲ **New York**—Power Authority of State of New York, The Coliseum, 10 Columbus Circle, New York, Zone 19, 1,800,000 kw power project, Niagara Power Project. $600,000,000.

▲ **Washington**—Benton County Public Utilities Dist., Prosser, 450,000-kw hydro dam on Columbia River north of Richland, $150,000,000.

ADVERTISEMENT FOR BIDS

Northern Illinois Toll Highway

CONTRACT CMA-1

Bids to be opened September 12, 1957

Sealed proposals for Contract CMA-1 will be received by The Illinois State Toll Highway Commission at its offices, 20 N. Wacker Dr., Chicago 6, Ill., until 11:00 o'clock A.M., Daylight Savings Time, on September 12, 1957, and then immediately taken to Suite 631, 20 N. Wacker Drive, Chicago, Ill., publicly opened and read aloud.

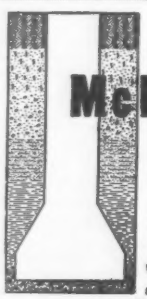
The work to be done under this contract shall be commenced on October 1, 1957, or on such earlier date as may be mutually agreed upon between the Commission and the Contractor. All work under this contract shall be completed on or before August 31, 1958, and consists of:

The construction and completion of the Administration Building and the Central Shop Building near the intersection of Midwest Road and 22nd Street, DuPage County, Illinois, including site improvement work, general work, mechanical work and electrical work.

THE ILLINOIS STATE TOLL HIGHWAY COMMISSION

20 N. Wacker Drive, Chicago — By Austin L. Wyman, Chairman

Write, wire or phone for detailed information and necessary forms, Chief Engineer, Room 1654, 20 N. Wacker Dr., Chicago 6, Ill. Telephone FRanklin 2-7020.



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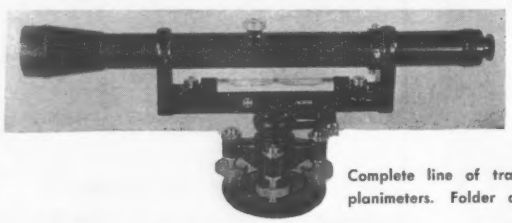

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LATIN AMERICA

▲ **Venezuela**—TUNNELS—Ministry of P. Wks., Centro Simon Bolivar, Torre Sur, Piso 15, Caracas, Venezuela, two 3.4 mi. vehicular tunnels, through Fila Norte Mountains on superhighway connecting Caracas with seacoast. Total cost with road **$60,000,000.** Documents showing requalifications of bidders will be received up to Aug. 30. Exact bid date has not been set. CD 7/17.

FOREIGN

▲ **Germany**—REFINERY—B. P. Benzinund Petroleum-Gesellschaft, Bonn, 80,000 b/d refinery incl. catalytic reforming unit in Ruhr, **$83,000,000.**

PUBLIC BUILDINGS

▲ **Calif., Pasadena**—SCHOOLS—Pasadena High School Dist., 351 S. Hudson Ave., athletic facilities at Pasadena High School on former Victory Park property, **$350,000;** auditorium, **$836,000,** gymnasiums, **$550,000;** addnl. classrooms, **$450,000** addns. at Pasadena High School; rehabilitations at Eliot Junior High School, **$1,350,200;** addns., rehabilitations at La Canada Junior High School, **$1,110,150;** addns., rehabilitations at John Marshall Junior High School, **$708,500;** addns., rehabilitations at William McKinley Junior High School, **$683,400;** addns., rehabilitations to Woodrow Wilson Junior High School, **$622,300.**

▲ **Calif., San Francisco**—COURTHOUSE—City and San Francisco Co., Dpt. P. Wks., City Hall, **$22,150,000.** bond election Nov. 5, courthouse and remodeling city hall, **$22,150,000.**

▲ **Calif., San Mateo**—COLLEGE ADDNS.—San Mateo Junior Coulege Dist., Coyote Point, $5,900,000 bond election Oct. 15, school buildings at Southern Campus and site purchase for Northern Campus, **$9,500,000;** Warnecke & Warnecke, 507 Howard St., San Francisco, Calif., archts. CD 10/7/54.

▲ **Calif., Stockton**—City, City Hall, **$2,144,000.** bond election Oct. 8, sanitary sewer sys. $2,144,000.

▲ **Ill., Chicago**—APARTMENTS—Chicago Housing Auth., 608 S. Dearborn St., plans by Mittlebusher & Tourtelot, 36 S. State St., 1,015 unit apartment bldgs., vicinity 51 to 55 and State Sts. **$10,000,000.**

▲ **Ill., Chicago**—APARTMENTS—Chicago Housing Authority, 608 S. Dearborn St., plans by Pace Assocs., 53 W. Jackson Blvd., 864 unit apartment bldgs., Ogden and Division Sts. **$8,500,000.** CD 8/18/54.

▲ **Ill., Granite City**—SCHOOL—Granite City School Bd., 3100 Madison St., **$2,200,000** bond election Sept. 28, junior high school, three elementary schools, existing bldg., imprv. and addns. etc., $2,447,650. Joseph D. Standish, Spivey Bldg., East St. Louis, archt. CD 5/7/53.

▲ **La., Baton Rouge**—HEADQUARTERS—Louisiana State Hy. Dpt., R. B. Richardson, dir., Hy. Office Bldg., plans by A. Hays Town, Triad Bldg., Baton Rouge, La, highway headquarters bldg. **$3,000,000.** CD 4/12/56.

▲ **La., Baton Rouge**—DORMITORY—Louisiana State University, Baton Rouge, plans by Brocato & Benlin, 2709 Florida St., 4 story, concrete frame men's dormitory, **$1,100,000.** E. E. Evans, 4755 Convention St., and Chesson, Forest & Holland, 3958 Convention St., consult. engrs. CD 8/5.

▲ **Md., Elkton**—SCHOOL ADDN.—Bd. Educ., Cecil Co., plans by Meyer & Ayers, Federal Land Bank Bldg., Baltimore, Zone 18, concrete, steel, clock, high school addn., **$1,200,000.** McNeil & Baldwin, 1025 St. Paul St., Baltimore, Zone 2, mech. engr. Van R. P. Saxe, 1701 St. Paul St., Baltimore, Zone 2, structural engr.

▲ **Mich., Flint**—SCHOOL—City, Bd. Educ., plans by Eberle M. Smith & Assoc. Inc., 153 East Elizabeth St., Detroit, Zone 1, West Side High School, West 12th St. near Hammerberg St., **$1,000,000.**

▲ **Mich., Rochester**—UNIVERSITY—Michigan State University, State Bd. Agriculture, John A. Hannah, pres., Rochester, plans by Swanson Assocs., Inc., West Long Lake Rd., Bloomfield Hills, classroom bldg., Meadowbrook Farms, first unit of new 1,400 acre University development. **$2,000,000.**

▲ **O., Batavia**—HOSPITAL—Clermont Co. Comrs., Court House, bond election Nov. 5, county hospital, **$2,000,000.**

▲ **Wis., Madison**—STATE OFFICE—State Bldg. Comn., plans by Roger C. Kirckhoff, c/o owner, state archt., state office bldg., **$4,223,000.** CD 10/26/55.

▲ **Alaska, Ketchikan**—SCHOOL—School Bd., Ketchikan, plans by L. A. Forrest, Juneau, elementary school. **$1,500,000.**

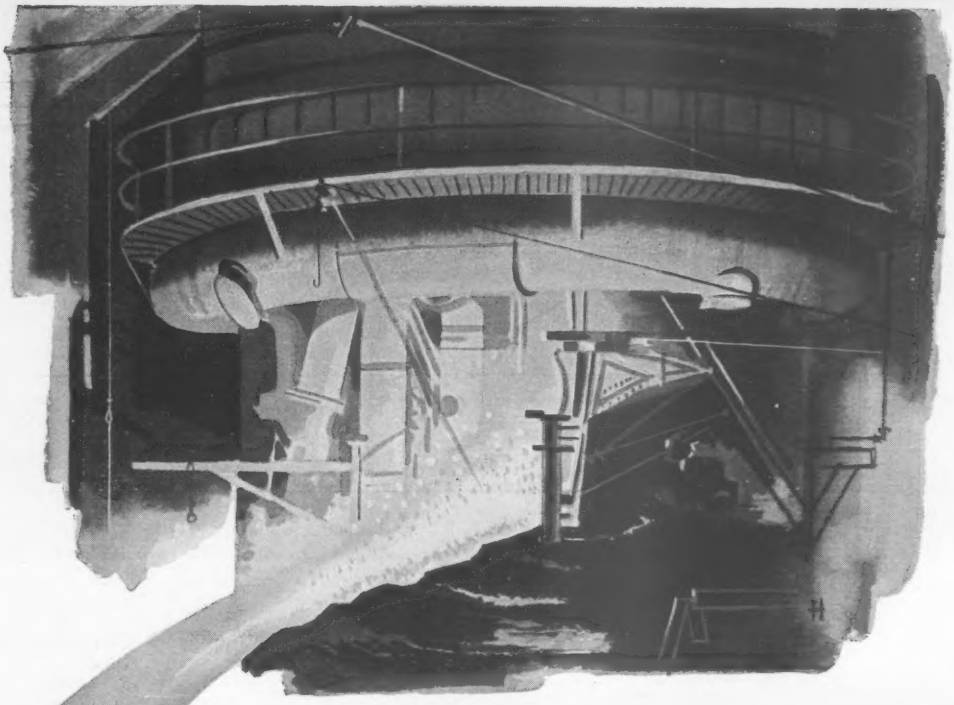
COMMERCIAL BUILDINGS

▲ **Ark., Little Rock**—SHOPPING CENTER—Feist & Feist 58 Park Place, Newark, N. J., shopping center, 80 acre tract west of city **$10,000,000.**

▲ **Calif., Fresno**—DEPARTMENT STORE—Western Dpt. Stores, 16th and Broadway, Oakland, department store, Manchester shopping center, **$3,500,000.** Constr. Jan. 1958.

▲ **Colo., Denver**—OFFICE—Public Service Co., 15th and Champa Sts., 250,000 sq. ft. home office bldg. $5,000,000.

(Continued on page 73)



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. . . Blast Furnace Slag

Out of the fiery heat of the blast furnaces of our great steel industry pours this by-product of vital importance to America-on-wheels and on-the-wing.

Molten slag from these furnaces flows into pits, by runners or transported by ladles, where it is allowed to air-cool and harden. It is then excavated, crushed and screened.

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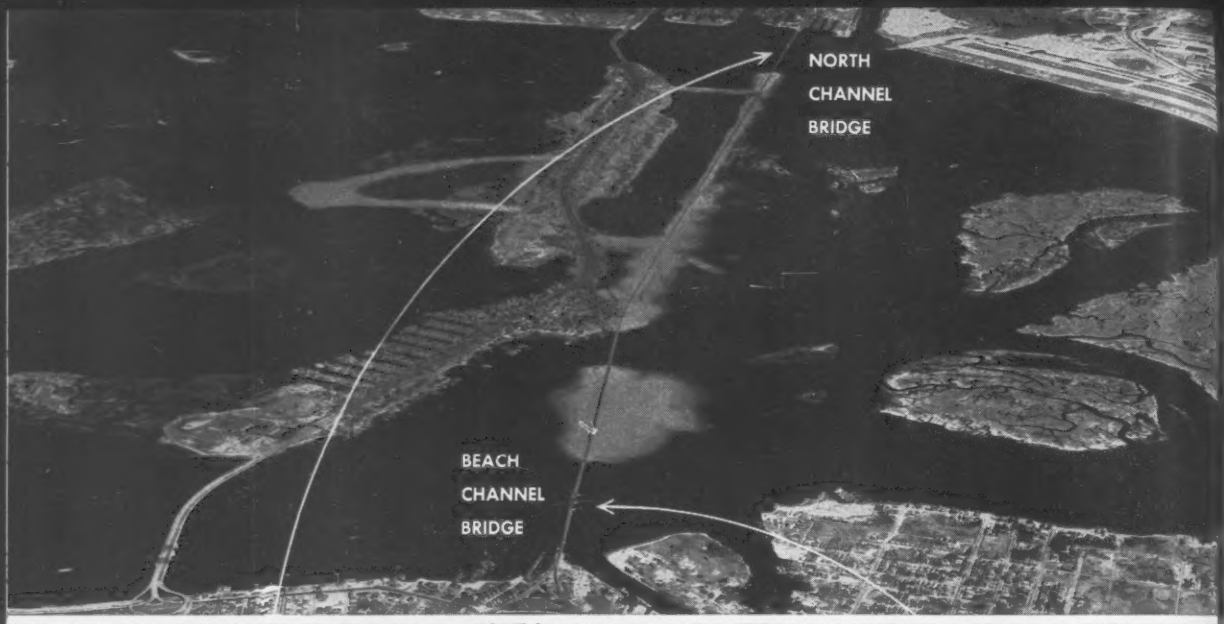
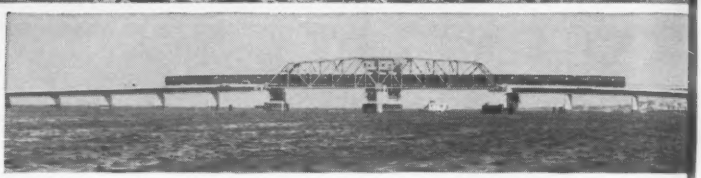
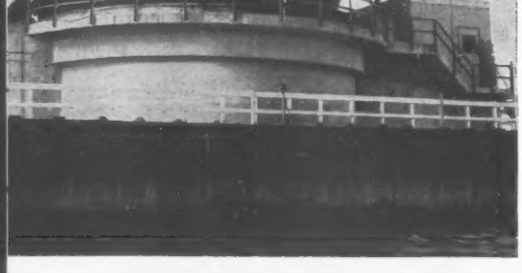




LOW CONTOUR SWING SPANS

solve traffic problem of sea-going subway line!

Specially designed structures on Jamaica Bay Crossing present no undue hazard to nearby Idlewild aircraft.



BUILT BY the New York Transit Authority, this new $25 million double-track over-water subway route linking The Rockaways with the city is a 6½-mile combination of trestles, steel girder spans and two swing bridges.

Because the Jamaica Bay bridges lie directly beneath the approach patterns for two runways of nearby Idlewild Airport, they were designed to minimize any hazard to low-flying planes. The fact that both the Beach Channel and the North Channel provide channel clearances of 200 ft. ruled out bascule-type bridges. The answer was found in the low contour structures shown here, the top of the top chords of which are just 65 ft. above mean high water. To further cut down on height, motors for these swing spans were placed in the supporting pier, rather than on top of it. Even the control houses are suspended from the top chord.

American Bridge fabricated and erected the structural steelwork for both swing bridges—the 305′-long Beach Channel Bridge and the 272′4″-long North Channel Bridge—together with 2470′ of plate girder spans for approaches. The American Bridge contract also included motors and other material and services for placing the entire bridge project in operation.

If you would like to know more about our fabricating and erecting services, please contact the office nearest you.

Jamaica Bay Swing Bridges and Approaches built for New York Transit Authority by American Bridge.

Designs by Hardesty & Hanover, Consulting Engineers, New York, N. Y. **Substructure Contractor: Merritt-Chapman & Scott, New York, N. Y.**

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AMERICAN BRIDGE

UNITED STATES STEEL

(Continued from pg. 70)

▲ **Md., Baltimore**—HOSPITAL—Johns Hopkins Hospital, Broadway & Monument Sts., Baltimore, plans by Fisher, Nes, Campbell & Assoc., 1020 St. Paul St., Baltimore Zone 2, 14 story, brick, stone, steel, rein. conc. hospital incl. elevators, $3,000,000. Egli & Gompf, 1003 N. Calvert St., Baltimore, mech. enrgs. Van R. P. Saxe, 1701 St. Paul St., Baltimore, struct. engr.

▲ **Mo., St. Louis**—HOSPITAL and RESEARCH BLDG.—Washington University, Ethan A. H. Shepley, chancellor, Skinker and Lindell Blvds., plans by Murphy & Mackey, 4746 McPherson Ave., St. Louis 8, Mo., 11 story, bsmnt. and sub-bsmnt. hospital and research bldg., to adjoin Wohl Memorial Hospital in Barnes Hospital group, at Audubon and Euclid Aves. and South Kingshighway, $2,050,000.

▲ **N. Y., New York**—OFFICE—Glickman Corp., 565 5th Ave., plans by Pomerance & Breines, 33 W. 46 St., 44 story Carnegie Plaza Bldg., 7 Ave and W. 57 St. steel panels covered with porcelain $22,000,000.

▲ **O., Cleveland**—OFFICE—Tishman Realty & Constr. Co., 460 Park Ave., New York, N. Y., second office bldg. on E. 9th St. $15,000,000.

▲ **O., Painesville**—MEMORIAL HALL, etc.—Lake Erie College, W. Washington St., plans by Victor Christ-Janer of Freehold Assoc., 70 Elm St., New Canaan, Conn., building to replace Memorial Hall. Over $1,000,000; science bldg., enlarging classroom facilities, dining room, remodeling gymnasium and other campus imprvs. $2,000,000.

▲ **Tex, Dallas**—OFFICE—Mercantile National Bank, c/o Mercantile National Bank Bldg., plans by Broad & Nelson, 3313 Gilford St., 8 story addn. to existing Mercantile Commerce Office Bldg. $2,500,000. Zumwalt & Vinther, c/o Mercantile Securities Bldg., and Rob. L. Rolfe, 2401-A Bryan St., consult. engrs.

▲ **Tex., Mesquite**—SHOPPING CENTER—Big Town Co., c/o Wes Fenton, 1006 Davis Blvd., Dallas, plans by Tatum & Quade, 2812 Fairmount St., Dallas, addnl. shopping center units in 75-acre tract. $10,000,000.

▲ **Va., Alexandria**—MOTEL, etc.—Mace Properties, 3865 Wilson Blvd., Arlington, plans by Harry Ormston, S. Langley Lane, McLean, motel and shopping center, Shirley Hy. and Seminary Rd. $2,200,000.

▲ **Wash., Seattle**—OFFICE, etc.—University Properties, Inc., White-Henry-Stuart Bldg., Zone 1, plans by Naramore, Bain, Brady & Johanson, 904 7 Ave., 20 story office bldg. to replace Douglas Bldg. and 6-level, 115x235 ft. parking garage, $9,000,000. Work may start next year. CD 7/29/55.

▲ **Que., Montreal**—HOSPITAL—St. Francis Cabrini Hospital, c/o Missionary Sisters of Sacred Heart, c/o Brouillet & Carmel, consult. engrs., 3600 Barclay Ave., Montreal, plans by DeSina & Pellegrini, 140 Cedar St., New York, N. Y. 4 story, 150-bed rein.-con., frame, brick hospital with provision for addnl. 3 storys, site bounded by Dickson, Chatelaine, St. Zotique and Belanger Sts., $3,000,000. Franco Consiglio, 1410 Guy St., Montreal, assoc. archt.

INDUSTRIAL BUILDINGS

▲ **Ariz., Phoenix**—WAREHOUSE—Lightening Moving & Warehouse Co., 525 E. Jackson St., plans by Lloyd Peyton Ware, 4700 N. Central Ave., 350,000 sq. ft., 2½ block warehouse. $2,000,000.

▲ **Ill., Harvey**—LABORATORY—Allis-Chalmers Mfg. Co., Buda Div. Works, 1126 S. 70 St., Milwaukee, Wis., engineer development and research laboratory. $3,250,000.

▲ **Tex., Calallen**—POWER PLANT—Central Power & Light Co., 120 N. Chaparral St., Corpus Christi, Lon C. Hill Electric Power Plant, incl. addn. of 175,000 kw generating units. $12,000,000.

▲ **Tex., Dallas**—INDUSTRIAL—Havaco Corp., 3440 Haggar Dr., plans by Wm. T. Hefley, 420 W. Wismere St., San Antonio, industrial constr. (warehousing, shop mfg.) 10 acre tract in Love Field area. $2,500,000.

▲ **Utah, Salt Lake City**—PLANT—Litton Industries, Inc., Charles B. Thornton, Pres., 256 E. Broadway, Salt Lake City, 30,000 sq. ft. masonry and structural steel 1st unit electronic mfg. plant, $2,000,000; W. J. Moran Co., 1011 S. Fremont St., Alhambra, Calif., consult. engrs. CD 5/20.

▲ **Wis., Manitowoc**—MILL—Aluminum Goods Mfg. Co., 1512 Washington St., 157,000 sq. ft. rolling mill, $12,000,000.

▲ **B. C., Vancouver**—PLANT—Western Gypsum Products Ltd., c/o 576 W. 1 St., plant, north foot of Renfrew St. Over $2,500,000. A. C. Smith & Assocs, 1531 W. Pender St., consult. engrs.

UNCLASSIFIED

▲ **N. Y., Tonawanda**—SWIMMING POOLS, etc.—Town, Town Hall, plans by A. Russell Tryon & Assoc., town planning consultant, Prudential Bldg., Buffalo, 2 swimming pools, 3 wading pools, 2 ou door skating rinks, playgrounds and hard court play areas, $2,000,000. CD 7/13/56.

▲ **N. Y., Tottenville**—BULKHEAD, etc.—Borough Pres. of Richmond, Borough Hall, St George, Proj. PR-66, bulkhead jetties and sand fill, Miller Field, New Dorp to Wards Point, Richmond Borough, $10,000,000. To go ahead after 1962.

▲ **Quebec**—WHARVES—St. Lawrence Seaway Auth., No. 2 Temporay Bldg., Ottawa, Ont., 4,000 ft. wharfage above Cote Ste. Catherine Lock, south shore of Montreal, $2,000,000. A Gordon Murphy, c/o owner, 685 Cathcart St., Montreal, ch. engr.

(Proposal Advertisements 83 to 85)

TRU-LAY *flexible* PUSH-PULLS FOR Remote Control Jobs on a great variety of Construction Equipment

Adaptability to all sorts of mechanical situations explains, in large measure, the wide-spread use of TRU-LAY PUSH-PULLS on tractors and their accessories, power shovels, winches, road graders, road oilers, dump trucks, snow plows, engine-driven pumps, rock crushers and other construction equipment.

These dependable Push-Pulls are used for the remote control of hydraulic and air valves, brakes, clutches, transmissions, throttles, chokes, governors, power take-offs, and many other applications.

TRU-LAY PUSH-PULLS are precision products, not gadgets. They provide positive remote-action whether anchorages are fixed or movable . . . for light loads or loads up to 1,000 lbs. . . . and they are effective over short or long distances, up to 150 feet or more.

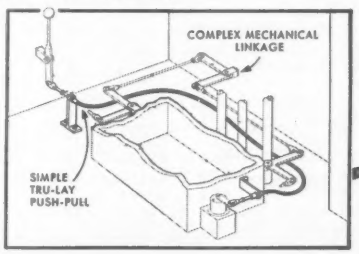
TRU-LAY PUSH-PULLS are dependable and accurate even under the most adverse conditions

They perform effectively under extremes of heat or cold . . . from jet engine temperatures to 70° below zero F. The inner, working member (lubricated for life during assembly) is fully protected by the tough, flexible conduit. Abrasive dusts, dirt and moisture are sealed out. Fittings are cold-swaged to make them integral parts of the control unit. It is a matter of record that we have never heard of a TRU-LAY *flexible* PUSH-PULL wearing out in normal service. Use of these versatile, simple and rugged controls increases ease of operation and means the virtual elimination of maintenance.

Advantages of Tru-Lay Push-Pull flexibility and simplicity are pictured below

Simplicity vs Complexity

Compare the TRU-LAY PUSH-PULL cable in illustration with the mechanical linkage. PUSH-PULLS are simple, have but one moving part, are noiseless and give lifetime service accuracy. Linkages are complex, made of many parts; they wear at many points. Their use brings increased backlash, lost accuracy and vibration rattles.



"Solid as a rod but *flexible* as a wire rope" is a good description of TRU-LAY PUSH-PULL REMOTE CONTROLS. This flexibility makes it possible to snake around obstructions . . . permits the ideal arrangement of all control elements . . . greatly simplifies installation of controls by reducing the number of working parts . . . damps out noise and vibration. Versatile, accurate, adaptable, rugged . . . they are the ideal remote controls for construction equipment.

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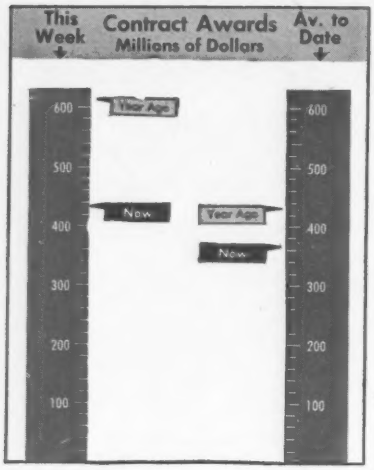
Construction Scoreboard

Activity this Week



AMOUNT OF CONTRACTS LET

By Ownership	This Week	Cum. 35 wks 1957	Chge '56-'57 %
		millions	
Federal	$49.3	$1,819.5	+54
State and Municipal	224.4	5,120.3	+16
Total Public	273.7	6,939.8	+24
Total Private	162.8	5,900.2	−38
U. S. Total	$436.5	$12,840.0	−15
By Type of Work			
Waterworks	$3.1	$246.5	+0.6
Sewerage	6.9	376.9	−7
Bridges	35.7	511.7	+25
Highways	70.3	2,160.0	+31
Earthwork, Waterways	38.1	767.3	+48
Buildings:			
Public, Excl. Housg.	65.0	1,561.5	+13
Public Housing	20.1	477.5	+119
Private Housing	37.7	2,031.3	−49
Commercial	36.2	1,213.6	−0.1
Industrial	77.0	2,313.8	−39
Unclassified	46.4	1,179.9	−3
U. S. Total	$436.5	$12,840.0	−15

NOTE: Minimum size projects included are: Waterworks and waterways, $44,000; other public works, $73,000; industrial buildings, $93,000; other buildings, $344,000.

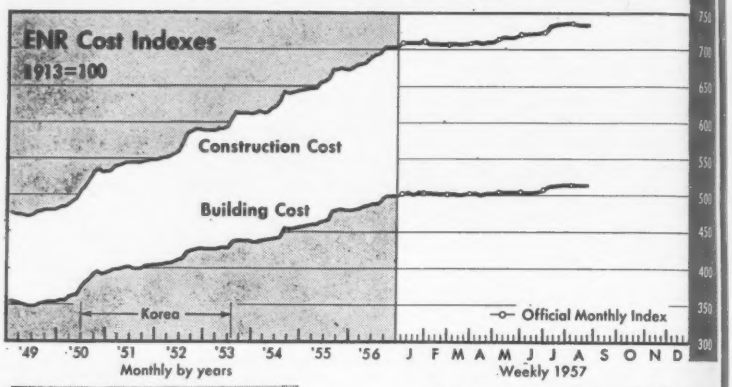
NEW CAPITAL FOR CONSTRUCTION

	Week of Aug. 22	Cum. 34 wks 1957	Chge '56-'57 %
	millions		
Corporate Securities	$87.3	$3,838.6	+23
State and Municipal:			
All Except Housing	154.4	3,585.1	+18
Housing	...	155.8	+268
Federal Loans	1.0	158.9	+29
Federal Aid	...	2,161.2	+102
Total Nonfederal	$242.8	$9,899.7	+34
Federal Appropriations:			
In U. S.	$671.7	$1,099.4	−68
Outside U. S.	...	22.8	+43
Total New Capital	$914.5	$11,021.8	+1

Cost Indexes as of Now

ENR INDEXES (1913 = 100), 20-cities' average	Week of Aug. 22 1957	% Change from July 25 1957	% Change from Aug. 23 1956
Construction Cost	738.19	−0.1	+4.6
Building Cost	516.53	−0.1	+3.2

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850
1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518



BACKLOG OF PROPOSED HEAVY CONSTRUCTION

	July 31 1957 (millions)	Percent Change from last Month	Year
Total U.S. (ENR reported)	$106,848	−0.2	+ 6.5
By Ownership—			
Private	45,370	+0.2	+ 5.6
State and Municipal	48,357	−0.3	+ 8.5
Federal	13,121	−1.0	+ 2.4
By Type of Work—			
Waterworks	2,288	+0.05	+10.7
Sewerage	3,280	−1.0	+ 6.1
Bridges	3,093	−0.3	+7.3
Highways	12,874	−1.0	+10.7
Earthwork, Waterways	11,135	−0.3	− 1.0
Public Buildings, including Public Housing	19,694	−0.1	+10.0
Industrial Buildings	16,334	+0.1	+ 3.0
Commercial Buildings, incl. Private Housing	19,547	+0.5	+10.9
Unclassified, Private	9,490*	+0.02	− 7.9
Unclassified, Public	9,113	−0.4	+ 6.2

* Includes private bridges, $88 million

FLOW OF NEW PROJECTS INTO THE BACKLOG

	1957 July	1957 7-months (millions)	Percent Change from '56 July	Year Cum.
Total U. S. (ENR reported)	$863	$11,085	−37.4	−26.0
By Ownership—				
Private	452	5,394	−40.7	−33.6
State and Municipal	373	5,148	−38.9	−14.9
Federal	38	543	+435.5	−33.0
By Type of Work—				
Waterworks	12	248	−77.7	+ 4.1
Sewerage	29	365	−62.1	+13.3
Bridges	14	272	−56.3	−10.4
Highways	72	1,613	−40.5	+93.9
Earthwork, Waterways	13	117	−82.8	−74.9
Public Buildings, incl. Public Housing	238	2,564	− 4.4	−11.5
Industrial Buildings	146	1,884	−57.7	−49.6
Commercial: Mass Housing	151	1,423	−27.0	−31.7
Other Building	127	1,614	−28.4	+ 2.2
Unclassified, Private*	28	473	−14.9	−34.0
Unclassified, Public	33	513	+318.6	−71.5

* Includes private bridges

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	841	5,739	−22.5	+11.2
By Ownership—				
Private	242	2,105	−64.3	+37.9
State and Municipal	436	2,716	+40.9	+25.3
Federal	163	918	+69.4	+52.5

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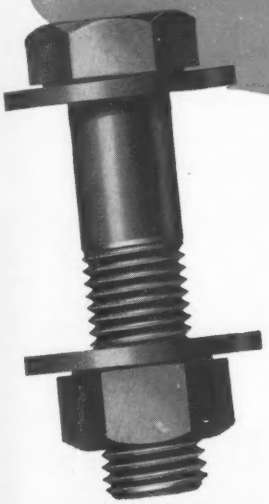
2 The three radial marks and the "A-325" indicate that the bolt meets with the *latest* rigid ASTM specifications for High-Strength structural bolts as certified by exhaustive independent laboratory tests.

LOOK FOR THESE MARKS ON THE NUT

1 The three long indented arcs on each end of the nut indicate that it meets with the *latest* ASTM specifications.

2 The three short dashes between the arcs is a Lamson & Sessions trade-mark. Only genuine Lamson High-Strength nuts bear this symbol.



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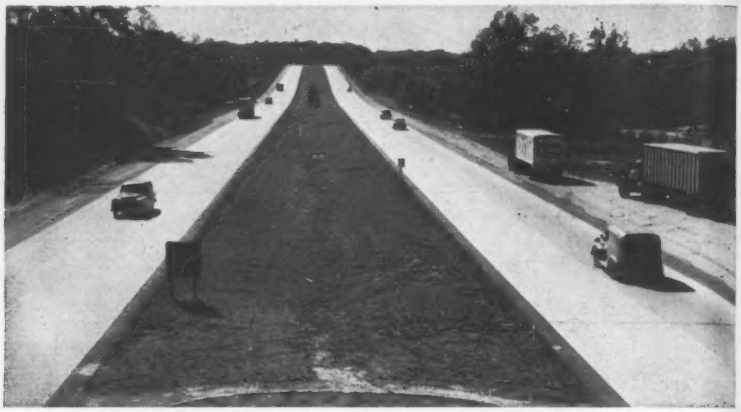
Tollroads:

Traffic and revenues show normal growth and upward trends, but still . . .



Turnpike Earnings Run Below Estimates

Several of the nation's operating toll highways are earning less than originally estimated by their traffic engineering consultants. However, some of the turnpikes have been in operation but a short time–one opened only this week–and their earnings potentials have not been firmly established.

Of 17 major tollroads and their extensions surveyed by Smith, Barney & Co., New York investment house, eight were operating below estimates during this year's first three to six months. Six of these, however, show definite upward trends and their longer term outlook was viewed optimistically.

Only one in this group–the West Virginia Turnpike–was considered to be in financial difficulty. Unless the state legislature takes remedial action in January, financial groups generally agree that the turnpike will be unable to meet payments to bondholders in full when the June 1958 coupons come due.

Here's a pike-by-pike rundown:

• **Florida Turnpike:** Opened to traffic last January, it is not yet up to earnings estimates. So far, it appears that first year gross revenue will be within 10% of the financing estimate.

• **Indiana Turnpike:** Opened in November 1956, weekly gross revenues are below estimates but show an encouraging uptrend. Truck traffic and revenues are not equalling the percentage expected. This is partially attributed to the state's relatively high truck toll rate in comparison with that of Ohio. Commercial vehicles originally were expected to produce 57.8% of the facility's toll revenues.

• **Jacksonville Expressway:** Earnings during this year's first half were well above those of last year and much higher than percentage increases anticipated. Full year earnings probably will exceed the engineers' financing estimates.

• **Kansas Turnpike:** Opened to traffic in October 1956. The monthly traffic and earnings reports of the Turnpike Authority show a steady improvement in road use, but initial traffic and revenues are substantially below anticipated levels. Some of this slow start is blamed on the lack of adequate approaches at the Kansas City end of the highway. A new road is under construction, but its completion is not expected for about one year.

• **Kentucky Turnpike:** Opened one year ago, eight months behind schedule, gross revenues are running well below estimates. They also are slightly under the level required to meet the current interest charges of $109,083 a month. Local boosters have charged that failure to erect adequate directional and promotional signs is a reason for the lower-than-estimated traffic and revenue.

• **Maine Turnpike:** The facility, completed 18 months ago with the addition of its Portland-Augusta leg, still is not earning enough to meet the interest requirements on its $78.6 million of outstanding bonds. The Turnpike Authority reported last week that net income available for bond interest and reserve funds during the first seven months of this year was $1.6 million. This was a slight increase from last year, but short the $1.8 million interest mathematically due on the bonds during the seven month period.

William B. Getchell, Jr., chairman, said he was "hopeful" that revenues from the road would be higher this month and next. He added that the road, extended in 1955 from Portland to Augusta, was not yet living up to expectations. Prior to opening of the extension, the turnpike from Kittery, at the New Hampshire border, to Portland, showed a steady profit. But the revenue derived from this stretch is not sufficient to make up the difference between net earnings of the turnpike and interest requirements on the 4% bonds.

• **Massachusetts Turnpike:** This facility was opened June 30. Projected on an annual basis, its first six weeks of operation showed that gross revenues from tolls are less than estimated by traffic engineers. More passenger cars, but fewer trucks than expected, used the turnpike. Trucks accounted for only 5.5% of total traffic, but the proportion is expected to increase before the first full year of operation.

William Callahan, chairman of the Turnpike Authority, said that experience on other tollroads shows it takes a year or more to win commercial vehicles away from other long-established routes. He explained that the authority is actively selling the advantages of the highway to trucking companies in an effort to hike traffic volume.

Mr. Callahan added that despite the current low figures, "it appears certain total revenues for the first year will exceed bond interest requirements and maintenance and operating expenses."

• **Garden State Parkway, New Jersey:** Last year this tollroad, which excludes commercial traffic for part of its length, came close to earning the amount estimated by traffic engineers. Debt service requirements were covered by a safe margin and if 1957's full earnings follow those of 1956, the total annual net will approximate engineers' estimates.

That this will occur was indicated by the July report from the New Jersey Highway Authority showing income for that month was slightly more than $2 million as compared to $1.8 million in July 1956.

Net operating income, after deduction of operating expenses, was $1.8 million last month, up from $1.6 million in July 1956. Debt payments due from July's net income, were $824,879.

• **New Jersey Turnpike:** Traffic and earnings continue the favorable trend apparent since the turnpike was opened to traffic in 1951. All reserve funds are full, interest on both general and second series bonds is covered by an ample margin and genuine progress is being made in debt retirement.

• **New York Thruway:** The New York-Buffalo "main stem" has been open for more than a year; other sections are scheduled for opening shortly. No comparable monthly figures are available for this year, but the revenue trend is generally above the levels of corresponding months of 1956.

• **Ohio Turnpike:** Toll rates on this facility were revised last year and this year. Truck tolls were lowered in mid-1956 while auto rates were raised last May 28. The Turnpike Authority has reported "gratifying results."

The Ohio Turnpike Commission reported that a new monthly record was set in July with revenues from operations totaling $2.4 million compared to the previous record of $2.5 million in June.

Revenues for the first seven months amounted to $10.6 million compared to $7.9 million during last year's same period.

•**Oklahoma Turnpike:** (Turner Turnpike) This facility, extending from Tulsa to Oklahoma City, has been in use for four years. It has shown an upward traffic and earnings trend since its opening.

The Northeastern or Will Rogers section of Oklahoma's turnpike system was opened to traffic June 28 but final contracts are not expected to be completed until Sept. 1.

The Turnpike Authority reported that during the first three weeks of operation, the section brought in approximately $126,000 in tolls, a lower-than-expected figure. The group also reported recently that when construction is finished, there will be a surplus of $10 million from the original $68 million bond issue (ENR Aug. 22, p. 110).

• **Pennsylvania Turnpike:** The Smith-Barney report described this facility's affairs as having been "clouded somewhat during the past year by reason of political interference and charges of malfeasance by certain commission members." The overall result has been uncertainty as to outlook. In addition, the commission has rejected the recommendations of its consulting engineers that would have effected a truck toll reduction. Such a move would have been a means of making certain sections of the main stem more attractive to commercial vehicles.

Figures show that the 1948 indenture project—the main route of the turnpike from the Ohio line to Valley Forge had earnings in 1956 equal to approximately 88% of the engineers' 1954 estimates. These earnings provided good debt service coverage and were also large enough to permit rapid advancement of debt retirement.

The survey also reported that by "mid-1960, at the present rate, all of the 1948 indenture bonds should be retired." This compares with the official estimated retirement date of 1962.

The 1952 indenture project (Valley Forge to Delaware River, the Pennsylvania Turnpike-New Jersey Turnpike Bridge and the Northeastern Extension) as a whole has been reporting earnings apparently well below estimates, according to the investment house.

Updating this report is the current month's statement from the Turnpike Commission covering July. During that month, gross revenues rose to $3.7 million from $3.1 million in July 1956.

Net income available for interest payment and debt retirement climbed to

Indianapolis Plans Its Tallest Building

Construction will begin next year on Indianapolis' highest building, a 22 story structure for city and county government offices.

Preliminary plans for the $20 million project have already been completed by Allied Architects & Engineers, of Indianapolis. Occupancy by 1961 is planned.

Steel frame construction will be used for the structure. The exterior will be granite at the first story and Indiana limestone above, with some use of either stainless steel or aluminum in horizontal bands.

The building will be air-conditioned and equipped with automatic elevators.

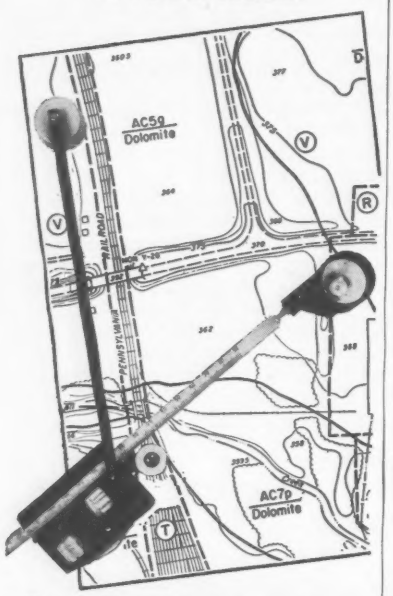
Gross enclosed area will be about 650,000 sq ft, divided among the 22 story tower and low flanking wings. Both wings will be the same height, but one (containing high-ceilinged court rooms) will have only five stories while the other will have six.

Two basement levels will extend beneath the entire building.

PRECISION INSTRUMENTS

NEW TYPE PLANIMETER

SETS TO ZERO AUTOMATICALLY



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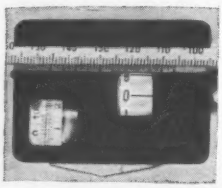

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$2.9 million from $2.2 million in the same month of last year.

Monthly interest requirements on the turnpike total $1.2 million, the commission reported.

• **Texas Turnpike:** Since the pike opened this week, figures that might indicate a trend are not available.

• **West Virginia Turnpike:** This toll-road shows some improvement in traffic and earnings as would be expected from normal growth, but its fiscal picture is described by several financial sources as "bleak."

The Turnpike Commission reported last week that revenues derived from operations totaled $377,337 during July, an increase of nearly $30,000 over the same month last year. After deducting operating expenses from the total, $321,003 is available toward interest and reserve requirements. Average monthly interest on the indebtedness of the turnpike is approximately $427,000.

So far, interest payments have been met from funds provided for in the original bond sale. But the interest payments due in December are expected to be paid from cumulative tolls and other turnpike revenues.

Unless the West Virginia legislature diverts state tax funds to interest installments, at least a partial default is anticipated when the June 1958 payment is due. Only a radical upsurge in present road use and earnings could forestall such an outcome.

Jackson and Biloxi Plan Water System Expansion

The City Commission of Jackson, Miss., will sell $2 million in bonds Sept. 4 to cover the cost of improving the city's water system. On the following day bids will be received for the construction of a 15 million gallon addition to the water storage capacity.

In Biloxi, a referendum on Sept. 10 will decide the outcome of a proposal to sell $4.5 million in bonds to finance expansion and improvement of the water and sewage systems.

Steel Shipments Break Record

Shipments of finished steel products for construction and maintenance set a new record in the first six months of this year. The total of 6.5 million tons topped last year's figure by close to 1 million tons.

The construction industry now ranks third in steel consumption. Warehouses and distributors are first with 8.4 million tons and automotive consumers are second with 7.3 million tons.

Tonnage going directly to the oil and gas sector of the construction industry soared 32% ahead of last year's first half with a total of 1.8 million tons. Another 4.7 million tons went for all other construction purposes to show a sharp increase of 14% over the first six months of last year.

New records for the half were set in shipments of heavy structural shapes, steel piling, reinforcing bars, oil country goods and line pipe. Shapes and plate shipments each were ahead of last year's first half by 22%.

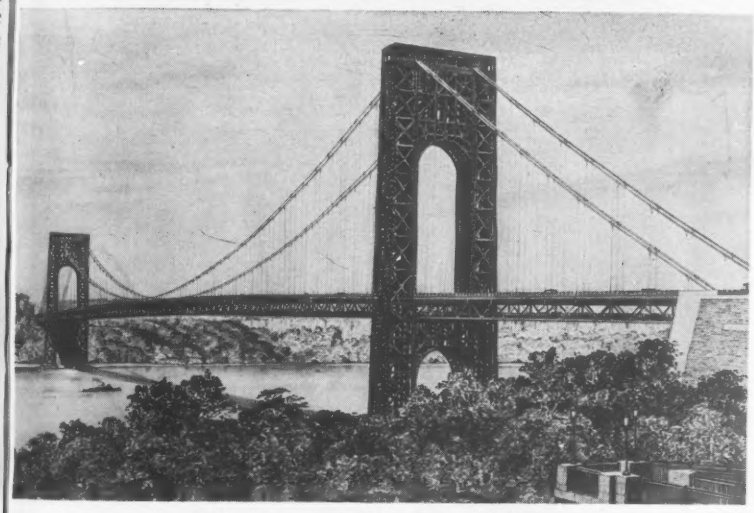
Steel piling tonnage shipments exceeded those for the first half of 1956 by 40%.

Shipments of Construction Steel — January-June '57

Reported by American Iron and Steel Institute, in thousands of net tons

	First Half		%	% of Shipments	
	1957	1956	Chg	1957	1956
Total-All Steel Products					
(incl. exports)	44,285	46,934	− 6	100.0	100.0
By Product					
Structural shapes, heavy	3,443	2,823	+22	7.8	6.0
Steel piling	300	214	+40	0.7	0.5
Plates	5,085	4,160	+22	11.5	8.9
Reinforcing bars	1,334	1,307	+ 2	3.0	2.8
By Consumer					
Total Domestic Shipments	41,749	44,962	− 7	100.0	100.0
Warehouses and Distributors	8,358	9,207	− 9	20.0	20.0
Construction and Maintenance	6,528	5,532	+18	15.6	12.3
Rail transportation	33	38	−13	0.1	0.1
Oil and gas	1,796	1,361	+32	4.3	3.0
All other	4,699	4,133	+14	11.2	9.2
Contractors' Products	1,927	2,331	−17	4.6	5.2

Today—One Deck Becomes Inadequate . . .



. . . Soon—Bridge Will Get a Second

A contract to design a second deck adding six more traffic lanes to the George Washington Bridge has been awarded by the Port of New York Authority to Ammann & Whitney, consulting engineers, New York City.

O. H. Ammann, a senior partner in that firm, was chief engineer of the PNYA when the suspension bridge was designed and constructed over 25 years ago.

With a main span of 3,500 ft, the structure, which spans the Hudson River at New York City, has the world's second longest suspension span and an overall length of 4,760 ft. It is topped now only by the 4,200 ft span of the Golden Gate Bridge, but has a considerably greater load capacity, since its deck is carried by four 36 in. dia cables compared with only two of 36½ in. dia on the San Francisco structure. However, the Mackinac Straits Bridge, when completed, will have a 3,800 ft main span.

The present single deck of the George Washington Bridge carries eight traffic lanes. Probably about 36 million vehicles will pass over it this year. Consultants to the PNYA estimate that in 1960, with the second deck available, nearly 41 million will use the facility. Capacity operation at 56 million per year is anticipated for 1965.

• **Design modifications**—The new six-lane deck will be added below the existing one. The bridge had originally been designed to support such a deck for either rail or vehicular traffic (ENR Oct. 22, 1931, vol p. 640). Only minor changes at the anchorages will be required to accommodate the added loads.

The new deck will provide two 3 lane roadways, each 36 ft wide, and service and emergency footwalks. It will be built at the level of the bottom chords of two trusses to be added along the sides of the bridge. The present stiffening girders will become the top chords of the trusses. Construction of the deck is estimated to cost about $20 million and will take about 2½ years.

Minimum clearance between the lower roadway and upper deck will be 15 ft. Clearance above high water at midspan will be 204 ft.

Plans call for continuation of the policy of reversing the two middle lanes on the upper deck in peak traffic hours so that eight lanes can be used for traffic in one direction.

The design fee is estimated at $150,000. Ammann & Whitney have also been engaged to design the Narrows Bridge, a suspension structure to be built by the PNYA between Brooklyn and Staten Island, and the Throgs Neck suspension bridge to be constructed by the Triborough Bridge & Tunnel Authority between Queens and the Bronx, just east of the Bronx-Whitestone bridge.

Addition of the lower deck to the George Washington Bridge is part of a $167 million program to increase the traffic-carrying capacity of that structure. By far the greatest part of this expenditure will go into improved and additional approaches on the Manhattan and New Jersey sides of the river (ENR —Feb. 21, p. 47).

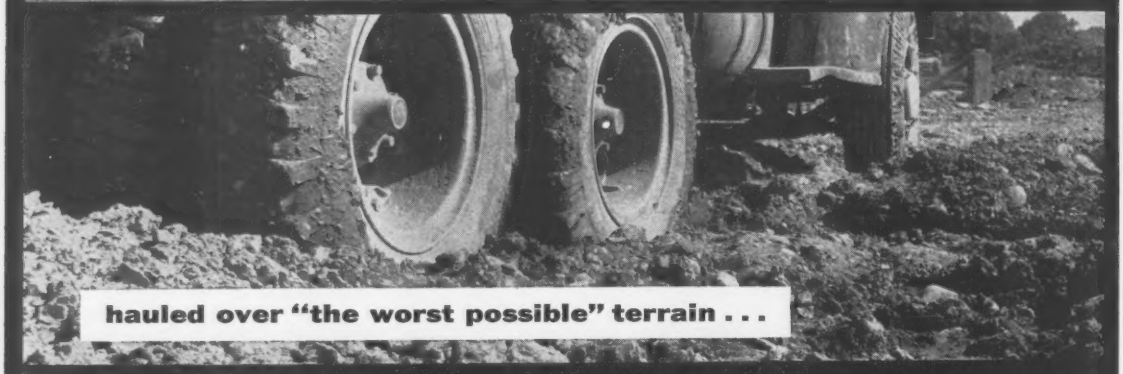
Curtain Wall Construction Forum Planned in Chicago

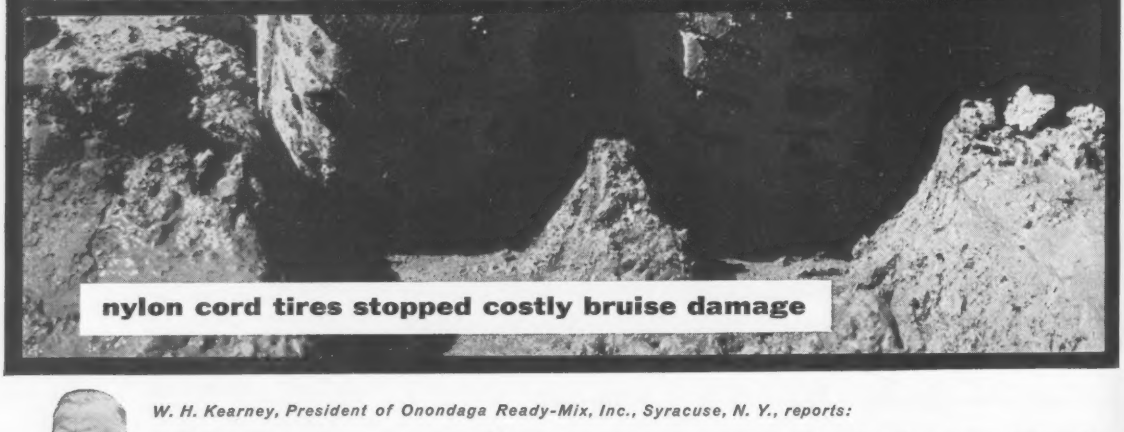
Chicago's commercial and construction upsurge of recent years will be spotlighted in October when the city observes Chicago Dynamic Week.

Advancements in architecture and building design with emphasis placed on curtain wall construction will spark the observance which starts Oct. 27. The affair is sponsored by civic and industrial leaders. Edward C. Logelin, vice president of United States Steel Corp., is chairman.

Five multistory buildings now under construction in and near the Loop and bordering the Chicago River will serve as the study and illustrative focal point at a one-day workshop session in the Museum of Science, on Oct. 29.

The next day a forum will discuss city planning and architecture for Chicago. Other program details for the week have not been formulated.





W. H. Kearney, President of Onondaga Ready-Mix, Inc., Syracuse, N. Y., reports:

"Nylon cord tires cut road delays 75%, stopped blowouts completely"

"Before we switched our 20 cement trucks to nylon cords 3 years ago," writes Mr. Kearney, "our tires were breaking down under the terrific mauling from sharp rocks, metal stakes, and 25-ton loads. Blowouts due to bruise damage and water rot of tire cord were all too frequent. Nylon stopped these failures completely; road delays are down 75%. We're now able to get up to three times as many recaps, to add about 80% to original tread mileage. We're expecting as much as 60,000 miles on some tires. You can bet that every one of our replacement tires is nylon."

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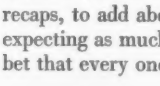

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NLRB Upholds Contractor Claims

Labor board tells unions it cannot strike to win jurisdiction over the maintenance of power tools

The National Labor Relations Board has disposed of a jurisdictional dispute between Operating Engineers' Local 825 and the Building Contractors Association of New Jersey by a "determination" that doesn't "determine" the dispute.

The NLRB has ruled that it is an unfair labor practice for the engineers to strike in an effort to gain jurisdiction over the day-to-day maintenance of small power equipment, including concrete vibrators, leveling machines, finishing machines, power saws, portable generators and power buggies.

Last year, the engineers struck New Jersey building contractors after the latter had refused the engineers' demand for a labor contract clause that would assign the disputed maintenance work to them rather than to members of the trades, such as hod carriers, bricklayers or carpenters, that operated the machines. An unfair labor practice charge was filed against the union by the contractors' association. The NLRB then held a Section 10 (k) hearing to "determine" the dispute.

Because the contractors were not parties to the National Joint Board procedure and had not submitted the dispute to the Joint Board, the NLRB ruled that the Lee case did not apply and that it had the power to entertain the dispute. The doctrine of the Lee case is that the NLRB is ousted of jurisdiction whenever all parties to a dispute are under the Joint Board procedure.

The NLRB found that the engineers were not "lawfully entitled to force or require" the work assignments they sought because they had "no immediate, enforceable, contractual claim to the work in dispute" and the employers were not "failing to conform to an order or certification" of the NLRB. Thus, the employers, said the NLRB, are "entitled" to make the disputed assignments "free from strike pressure."

Net result is a type of ruling recently criticized by the National Joint Board in a brief filed with the NLRB (ENR Aug. 22, p. 113) asking for an authoritative definition of the respective roles of the NLRB and the Joint Board in the handling of jurisdictional disputes. In its brief, the Joint Board said that NLRB rulings which give contractors an absolute right to make work assignments represent a "serious, continuing threat to the success of the Joint Board" and tend to "precipitate increased jurisdictional warfare." Its reasons are twofold: The rulings are a temptation to contractors to disassociate themselves from the Joint Board, and they vest in a few contractors the power "to disturb the customs and established practices of the industry."

This type of decision has also been condemned by the Third Circuit Court of Appeals, which ruled that the NLRB, in a Section 10 (k) hearing, must render an affirmative rather than a negative decision based on the merits of a dispute (ENR April 18, p. 179). So far, the NLRB has announced no change of position. In the New Jersey case, for example, the negative decision says engineers have no right to claim maintenance of power saws. An affirmative decision would say that the maintenance belongs to a specific trade, such as carpenters. The Joint Board would have the NLRB reach that decision based on expert testimony of the Joint Board's chairman.

Nominated as UN Delegate

AFL-CIO President George Meany, who began his career as a union plumber, has been nominated by President Eisenhower as a delegate to the United Nations General Assembly, which opens in New York Sept. 17. Mr. Meany will be the first union leader to serve as a full delegate. The labor federation views his appointment as "recognition of the forward-looking and constructive role played by the AFL-CIO in seeking to build a world of peace, prosperity and freedom."

Unions Aid Red Cross

AFL-CIO building trades give their time and skill to help hurricane victims

A dramatic illustration of organized labor's community services activity is taking place in Louisiana, where members of building trades unions throughout the state and East Texas are working weekends with the Red Cross on a volunteer basis in reconstruction of communities heavily hit by Hurricane Audrey earlier this summer.

The program got under way the weekend of Aug. 5, when 150 union members gathered in Cameron Parish and built five new homes in a 36 hour period. Occupants will be selected by the Red Cross from the list of needy hurricane victims who have applied for rehabilitation assistance.

Described by R. C. Edson, National Director of the Red Cross, as the first large-scale project of its kind ever attempted in a disaster area, the program is sponsored by the Louisiana State Labor Council, the Louisiana Building Trades Council and the Red Cross. Volunteers, whose transportation to the building sites is paid out of the State Labor Council's hurricane relief fund, are housed in tents put up by the National Guard and are fed in Army-operated feeding centers with Red Cross food. Mobile canteens donated by the AFL-CIO are used at the sites.

The volunteer weekend crews will work in Creole and Grand Chenier as well as Cameron. Each homebuilding team—consisting of 35 craftsmen representing carpenters, bricklayers, plumbers, electrical workers, laborers, roofers and painters—can erect one home in two days. Materials are furnished by the Red Cross. Portable generators for floodlights and necessary power tools are supplied by the AFL-CIO through funds contributed by local unions in the state.

Commenting on the program AFL-CIO Community Services Director Leo Perlis said it "is one of the brightest chapters in labor's long history of community service."

(*Labor continued on page 82*)

Right-to-Work Action

State labor groups unite to halt local legislation

Efforts to extend right-to-work legislation on the local level have run into stiff opposition on several fronts in California.

A right-to-work ordinance recently adopted by San Benito County has been declared illegal by a local court; the State Federation of Labor has announced plans for a "coordinated statewide campaign" against local right-to-work legislation; and the State Association of Electrical Workers has launched an educational program to counteract what the union's international secretary Joseph Keenan has called "the greatest swindle ever to be tried on the American public"—namely, the term "right-to-work."

Right-to-work laws, bitterly condenmned by organized labor in the construction industry, ban labor contract clauses that require union membership as a condition of employment. Originally confined to laws at the state level, the legislation now has appeared at the local level—in the City of Palm Springs and in the Counties of Tehama and San Benito. Similar ordinances are under consideration in Sutter, Yuba and Lake Counties.

C. J. Haggerty, secretary-treasurer of the state federation, has accused promoters of the legislation of preaching "civil war." They "would not only destroy the labor movement but would also wreck the economic and social stability of a great state," he declared.

Union shop contracts are allowed by the Taft-Hartley Act but only in those states that have not exercised the right under Section 14(b) of the law to ban them by right-to-work legislation. A contest over the validity of the Palm Springs ordinance is now before the courts, the principal issue being whether the authorization Congress gave the states extends to political subdivisions of a state.

The San Benito ordinance was held invalid because the field of labor legislation has been preempted by the state and federal governments, and because the Congressional permission granted a state to outlaw the union shop "has not been extended to its political subdivisions".

Under the state federation plan, the legal, financial and educational efforts of the 2,600 local unions affiliated with the federation will be centralized and coordinated in the fight against local right-to-work drives.

Mr. Keenan has charged that right-to-work laws, which, despite their name, do not confer the right to work, are part of a "war of innuendo, implication, half truths and lies" waged by anti-labor groups to cripple and destroy trade unionism. In defense of the union shop, Mr. Keenan said: "All we ask is that the people who benefit from collective bargaining share the responsibilities and the costs of union membership. This is the democratic way. It is not democratic for part of a group to enjoy benefits paid by others."

The argument that right-to-work legislation is essentially an anti-labor gimmick has also been used by another of the building trades—the lathers, who claim that in many states doctors and lawyers are prohibited under the authoritiy of law from practicing their professions unless they remain members in good standing of their respective "ironclad closed shops." An article in the union's current monthly journal states that these two groups, nevertheless, "are in the forefront of campaigns for more laws to prohibit the negotiations of even voluntary union shop agreements between unions and employers."

New West Coast Pacts

Plumbers and sheet metal workers end long strikes

The last of the building trades strikes that crippled Southern California construction for a month and a half ended last week. Plumbers and sheet metal workers signed new long-term contracts.

But two strikes continued in the San Francisco area—one by operating engineers against ready mixed concrete plants and the other by asbestos workers against Insulating Contractors of Northern California.

The new 3 year contract between Pipe Trades District Council 16 and the Plumbing, Heating and Piping Employers Council grants an overall hourly wage increase of 55 cents, plus another 10% in fringe benefits (2½% for vacations and holidays now and another 5% next Jan. 1, with 2½% for pensions beginning Jan. 1, 1959). Wage increases are in four installments, the first for 15 cents being retroactive to July 1. Another two-year pact with more than 100 independent contractors grants a package wage boost of 50 cents (in three steps with the final one for 25 cents), plus 25 cents in fringe benefits.

Meanwhile, two locals of the sheet metal workers have agreed to a 4 year contract granting an 81 cent hourly wage boost in four steps, plus 2 cents more for welfare effective next July and an increase in vacations from one to two weeks.

The San Francisco Bay Area strike of engineers' Local 3 is against the Northern California Ready Mixed Concrete and Materials Association. The union wants a 60 cent package in a 2 year contract (25 cents each year for wages and 5 cents each year for pensions). Employers are holding the line at 5 cents. A dozen cement plants have shut down.

Asbestos workers—Local 16—have been on strike since Aug. 1 against 8 association members and 12 independents. Union is demanding a 42½ cent wage boost in two steps, plus 20 cents in fringe benefits. Employers are offering 35 cents over two years.

AFL-CIO and UCW Compete For Interstate Road Work

Efforts of three AFL-CIO building trades to break the hold of United Construction Workers on Kentucky's first interstate highway construction project have been referred to a local court and to the National Labor Relations Board.

A temporary injunction banning picketing of the project by members of the carpenters, laborers and teamsters unions has been issued by Hardin County Circuit Court and will remain in force pending the filing of briefs by the contractor and rival unions. Meanwhile, Local 576 of the laborers union has filed an unfair labor practice charge against the contractor with the NLRB in Cincinnati, Ohio.

The project embraces construction of approaches and two bridges at Nolin River, south of Elizabethtown. The contractor, Saltzman Construction Co., has a union contract with UCW, an affiliate of John L. Lewis' United Mine Workers. UCW has long competed for highway work with AFL-CIO trades, which have organized the "Big Four" (carpenters, operating engineers, teamsters and laborers) in an effort to prevent jurisdictional losses to UCW.

Picketing of the Nolin River project by the AFL-CIO unions began when Saltzman was accused of refusing to hire AFL-CIO members. Work was halted because a Kentucky Highway Department order, now under reconsideration, prohibited state employees from crossing peaceful picket lines.

The injunction was obtained by Saltzman, whose attorneys contended the picketing was aimed at forcing the contractor to break his contract with UCW.

OFFICIAL PROPOSALS

Bids: September 17, 1957.

Sinking Wells and Pumping Groundwater — Contract 463

SEALED BIDS will be received by the Board of Water Supply at its offices, thirteenth floor, 120 Wall Street, New York City until 11:00 A.M. Eastern Daylight Saving Time (10:00 A.M. Eastern Standard Time) on Tuesday, September 17, 1957, for Contract 463, for sinking and developing wells and pumping groundwater at the site of the proposed Cannonsville dam, in the Town of Deposit, Delaware County, New York. The principal features of the work to be done under this contract are the sinking of three or more pumping wells through the overburden and into bed rock, developing these wells, and equipping them with deep well turbine type pumps and discharge measuring devices; the sinking of a number of observation wells to various depths in the overburden and the developing of these wells; the measuring and recording of groundwater elevations in the pumping and observation wells, and controlled pumping from the pumping wells for such continuous periods as ordered, all as set forth in the specifications.

Pamphlets of the contract containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in the Secretary's office, Room 1312 at the above address, upon application in person or by mail, by depositing the sum of $5.00 for each pamphlet. Within 30 days following the award of contract or rejection of bids the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of $4.00 will be made for each other pamphlet returned in acceptable condition.

IRVING V. A. HUIE, President, EDWARD C. MAGUIRE, HERBERT M. ROSENBERG, Commissioners; Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: September 17, 1957

Contract NYA-650.051

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
REPLACEMENT OF FLOODLIGHTING IN PARKING LOT

Sealed proposals for removing existing light poles and installing other light poles and platforms for a parking lot at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. on Tuesday, September 17, 1957, at which time said proposals will be opened and read in Room 1108.

Contract Documents may be seen at the office of the Engineer of Design of the Authority, Room 1115, and copies will be furnished on request. No deposit will be required but the documents shall be returned in good condition not later than forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
Donald V. Lowe, Chairman

New York, August 29, 1957

U. S. Government

Sealed bids will be received in the office of the Engineering and Construction Director, Panama Canal Company, Balboa Heights, Canal Zone, until 10:00 AM October 2, 1957 and at that time will be publicly opened for the following: Excavation in the dry of approximately 250,000 cubic yards of material, and the drilling of approximately 200,000 L.F. of blast holes, and the use of approximately 400,000 pounds of explosives to break up material which will be excavated and disposed of by Panama Canal Company. Bid data, plans, and specifications are available for examination in the office of Chief, Procurement Division, Panama Canal Company, 21 West St., N. Y. 6, N. Y. Telephone BO 9-5380, extension 56. Sets of data can be obtained upon payment to this office of $25 deposit which will be refunded when data are returned. Reference: Serial No. PC-58-8.

READ THE OFFICIAL PROPOSAL COLUMN OF ENGINEERING NEWS-RECORD THIS WEEK AND EVERY WEEK

Bids: October 1, 1957.

Power Authority of the State of New York
Niagara Power Project
Advertisement for Proposals

FOR
THE FURNISHING AND DELIVERY
OF
28,000 HP HYDRAULIC PUMP/TURBINES
FOR
TUSCARORA PUMP/POWER PLANT

SPECIFICATIONS NO. PA-N-24001
NIAGARA CONTRACT NO. NP1

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the design, manufacture, and furnishing of 28,000 HP hydraulic pump/turbines performing as turbines and discharging 3400 cubic feet per second performing as pumps and delivery thereof f.o.b. Model City, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 1st day of October, 1957 at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y., at which time and place proposals will be publicly opened and read aloud.

Bids will be entertained for 6 or 12 pump/turbines and associated equipment and services in accordance with the bidding schedules. Erection at the site of installation will be done by others but services of erection engineers and mechanics shall be provided by the manufacturer if and when required.

Bids will not be restricted to American manufacturers.

Plans, Specifications and Proposal Forms for the work, which will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Mass., may be inspected by prospective bidders during office hours and may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, N. Y., upon application and prepayment of a fee of Ten ($10.00) dollars per initial set of contract documents, and Five ($5.00) dollars per set for additional sets, no part of which will be refunded.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the maximum price bid for any bid schedule.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: September 12, 1957.

Furnishing Items of Water Treatment Plant Equipment

NOTICE TO BIDDERS

Sealed proposals will be received until 11:00 A. M. EST, September 12, 1957, in the office of the City Commission of Fort Lauderdale, Florida for Project 630-A, furnishing items of water treatment plant equipment for the Fiveash Water Treatment Plant consisting of one Solids Contact Softener Mechanism and two Gravimetric Feeders and Slakers.

Bidding blanks may be obtained from the office of the City Engineer. Specifications, and Contract Documents are on file in the office of the City Engineer.

A deposit of $15.00 for Specifications, and of $10.00 for each additional set of specifications, will be required. All deposits for specifications will be refunded upon their return in good condition within 10 days of the opening of bids.

A certified check, cashier's check or bank officer's check, for 2% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the Bidder. This check shall be retained by the payee as liquidated damages should the Bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the Proposal, in the event the Proposal of the Bidder is accepted.

The City Commission reserves the right to reject any or all bids.

William J. Veeder
City Manager

Bids: October 10, 1957.

Territory of Hawaii
Territorial Highway Department
Honolulu, T. H.

NOTICE TO BIDDERS

SEALED PROPOSALS for the construction of Nuuanu Pali Road, Outbound Tunnels, Federal Aid Project No. BF 061-1(5), Districts of Honolulu and Koolaupoko, Island of Oahu, Territory of Hawaii, will be received at the office of the Territorial Highway Engineer, Honolulu, T. H., until 2:00 o'clock p.m., Thursday, October 10, 1957, at which time and place they will be publicly opened and read. The right is reserved to reject any and all proposals and to accept the one best suited to the interests of the Territory.

The principal items of work involved in the construction of two reinforced concrete lined vehicular tunnels of 1,080 lin. ft. and 496.5 lin. ft. respectively, and grading and paving of 0.414 mile of roadway include:

47,000 Cubic yards	Roadway Excavation
13,450 Cubic yards	Class A-1 Concrete in Tunnels
833,000 Pounds	Bar Reinforcing Steel in Tunnels
47,000 Cubic yards	Tunnel Excavation
1,047,300 Pounds	Structural Steel Ribs

Copies of plans, specifications, special provisions, and subsurface investigation reports are on file and open to public inspection as of August 8, 1957, at the office of the Territorial Highway Engineer, Territorial Office Building, Honolulu, T. H.; and also on or after August 19, 1957 at the following offices:

Regional Engineer
Region 7, Bureau of Public Roads
Old Mint Building
5th & Mission Streets
San Francisco, California

Associated General Contractors of America
(Central California Chapter)
850 Battery Street
San Francisco 11, California

Associated General Contractors of America
(Southern California Chapter)
2551 Beverly Blvd.
Los Angeles 57, California

Plans, specifications and blank forms of proposal will be available for mailing from the Territorial Highway Department to prospective bidders upon the deposit of Seventy Five Dollars ($75.00) plus air mail charges (approximately $7.50). Copies of subsurface investigation reports may be purchased from the Territorial Highway Department for the sum of Forty Dollars ($40.00) for each set. Deposit of Seventy Five Dollars ($75.00) will be refunded when plans are returned.

Remittances are payable by certified check or postal money order to the Territorial Highway Engineer and must accompany requests for plans, specifications and contract documents.

Each prospective bidder must file a "Standard Questionnaire and Financial Statement for Bidders" on the amended forms provided by the Territorial Highway Department at least thirty (30) days prior to the time advertised for the opening of bids.

After the questionnaire has been reviewed and checked, the prospective bidder will be notified as to whether or not he is prequalified to submit a bid.

W. M. WACHTER
Territorial Highway Engineer

U. S. Government

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-4958) will be received at Camp White, Oregon, until September 25, 1957, for furnishing labor and materials for Bear Creek Siphon Rehabilitation, Talent Lateral, Rogue River Basin Project, Oregon. Location near Ashland, Oregon. Principal items are for monolithic concrete barrel: 9,400 cu. yds. excvation; 579 cu. yds. concrete; for precast concrete pipe alternative: 8,300 cu. yds. excavation; 1,517 lin. ft. concrete cylinder pipe; and other work. Completion time 150 days. For particulars, address Bureau of Reclamation, P. O. Box 386, Camp White, Oregon; or Building 53, Denver Federal Center, Denver 2, Colorado. W. A. Dexheimer, Commissioner.

OFFICIAL PROPOSALS

Bids: September 19, 1957.

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 19th day of September 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, G. L. Nickerson District Engineer, 353 Broadway, Albany, N. Y.						
Albany	FISH 57-17 FIC 57-12	Interstate Route 502 (Albany to Latham) Proj. I-IG-1119(9)	5.52 (8.68) (Acc.)	9" Cem. Conc. Pavt. 2 @ 36'=5.42 Miles; 9" Cem. Conc. Pavt. Var. Width=7.07 Miles; Asph. Conc.=1.51 Miles; Misc. Work=0.20 Mile; 12 Hwy. Sep. Struct. 204.3', 216.0', 184.5' 184.5', 193.1', 138.1', 138.1', 155.4', 155.4', 172.4', 172.8', & 193.1'; 2 RR Sep. St. 181.3, & 181.3'	$625,000 Plans $100	$11,390,000
DISTRICT No. 2, Lacy Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.						
Herkimer & Montgomery (Rte. 5)	WSR 57-9	Little Falls-East Creek, S.H. 456—Truck Weigh Station No. 5 Palatine Br.-Fonda, Pt. 2, S.H. 5125—Truck Weigh Station No. 6	0.06	9" Cem. Conc. Pavt.=0.04 Mi. Misc. Work=0.02 Mi.	$220 Plans $10	$4,000
DISTRICT No. 3, Wm Robinson District Engineer, 353 Washington St., Syracuse, N. Y.						
Onondaga	FIC 57-11P FIRC 57-159P	Interstate Route 505, City of Syracuse: Oswego Blvd. Syracuse-Mattydale, S.H. 54-3; Phoenix-Syracuse, S.H. 5274. Proj. I-IG-463(17)	1.02 (2.16) (Acc.)	Asph. Conc., Ty 2A=3.07 Mi. Misc. Work=0.11 Mi.	$220,000 Plans $50	$3,979,000
Onondaga	FISH 57-18	Interstate Route 505 (Nedrow to Lafayette Sect.), FISH 56-12 (Webb Hollow Road Underpass) Proj. I-397(6)	0.06 (0.39) (Acc.)	9" Cem. Conc. Pavt. 2 @ 24'=0.06 Mi. Graded Grav. Bit. DST=0.39 Mi. Hy. Sep. Reinf. Conc. Rigid Frame 50.9'	$14,000 Plans $10	$265,000
Tompkins (Rte. 38)	R.C. 57-165	Freeville-Groton, S.H. 926	4.47	Asphalt Concrete	$11,000 Plans $10	$190,000
Wayne (Rte. 104A)	FARC 57-155	Red Creek-Fair Haven, S. H. 1185 Proj. F-535(2)	0.64	Asph. Conc.=0.56 Mi.; Misc. Work=p.08 Mi.; Br. 1, Twin Closed Box 23.3'; Br. 2, Twin Closed Box 23.1'	$14,000 Plans $10	$268,000
DISTRICT No. 4, B. F. Perry, District Engineer, Barge Canal Terminal, Rochester, N. Y.						
Monroe	FAC 57-10	Rochester City: Mt. Read Blvd. (Buffalo Road to Maple St.) Proj. U-1093(3)	0.38 (0.16) (Acc.)	Asphalt Concrete, Type 2A	$16,500 Plans $15	$297,000
DISTRICT No. 5, E. G. H. Youngmann, District Engineer, 65 Court St., Buffalo, N. Y.						
Erie (Rte. 5)	R.C. 57-164	Lackawanna City-South, S.H. 5071 Lake Shore-Lackawanna City, S.H. 5019	0.59	Demolition	$1,600 Plans $10	$29,000
Erie (Rte. 5)	FAC 57-4	City of Lackawanna; Arterial Route, Fuhrmann Blvd-Hamburg Turnpike Viaduct (Fox St.-Ridge Rd.) Demolition Cont. #2. Proj. U-750(10)	0.34	Demolition	$7,000 Plans $10	$133,000
Niagara (Rte. 384, 265)	T.C. 57-6	City of North Tonawanda: River Road Arterial (FAC 56-12)	2.06	Traffic Signal System	$1,900 Plans $10	$34,000
DISTRICT No. 6, J. H. Thomas, District Engineer, 30 West Main St., Hornell, N. Y.						
Schuyler	FASS 57-12	Montour Falls-Townsend (C.R. No. 398) Proj. S-446(1)	1.60	Top Crse. Bit. Macadam, Type I	$16,000 Plans $10	$293,000
DISTRICT No. 7, R. W. Sweet, District Engineer, 444 Van Duzee St., Watertown, N. Y.						
St. Lawrence (Rte. 11)	FARC 57-156	County Line-Gouverneur, S.H. 5287 Proj. F-476(7)	4.42	Asphalt Concrete	$47,000 Plans $15	$860,000
DISTRICT No. 8, K. G. Rauer, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.						
Rockland	PIP 57-2	Palisades Interstate Parkway Sect. 2 (Rte. 303-Rte. 59A)	5.19 (4.24) (Acc.)	Cem. Conc. Pavt. 2 @ 24'=8.64 Mi. Asph. Conc.=0.58 Mi. TC Graded Grav.=0.21 Mi.	$150,000 Plans $50	$2,794,000
Rockland (Rte. 17)	FARC 57-157	New Jersey State Line-Ramapo, S.H. 1844 Proj. F-405(7)	1.54	Asphalt Concrete	$22,000 Plans $10	$414,000
DISTRICT No. 9, J. C. Frederick, District Engineer, 71 Frederick St., Binghamton, N. Y.						
Otsego (Rte. 7)	FARC 57-121	Wells Bridge-Otego, S.H. 5153 Proj. F-628(6)	3.53	Asphalt Concrete Widen Exist. RC Beam Br. 30' Widen Exist. RC Beam Br. 36'	$37,000 Plans $15	$670,000
Otsego	C.R. 57-3	Milford Center-Milford, S.H. 674	....	Removal of Human Remains	$125 Plans $10	$2,400
DISTRICT No. 10, M. E. Goul, District Engineer, Little East Neck Rd., Babylon, L. I., N. Y.						
Nassau (Rte. 106)	FARC 57-167	Jericho-Oyster Bay, S.H. 9021 Proj. US-500(1)	1.77	Asphalt Conc.=1.72 Mi. Misc. Work=0.05 Mi.	$30,000 Plans $15	$526,000
Suffolk (Rte. 110)	FARC 57-161	Huntington-Amityville, Pt. 1, S.H. 794 Proj. U-297(4)	2.46	Asphalt Concrete=2.30 Mi. Misc. Work=0.16 Mi.	$82,000 Plans $25	$1,496,000
Suffolk (Rte. 27A)	FERC 57-160	Bayshore-Brookhaven Town Line, S.H. 5301 (Montauk Highway) Proj. ER-42(1)	0.12	Asphalt Concrete=0.03 Mi.; Misc. Work=0.09 Mi. 8'x4' Closed Box Culvert	$3,500 Plans $10	$62,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal-Aid Highway Act of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage) Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Laws, as set forth in "Instructions to Bidders".

The right is reserved to reject any or all bids.

JOHN W. JOHNSON
SUPT. OF PUBLIC WORKS

Read the Official Proposal Columns of

ENGINEERING NEWS-RECORD

This Week and Every Week

OFFICIAL PROPOSALS

Bids: September 12, 1957

Construction of Water Main

Notice is hereby given that sealed bids will be received in accordance with the law by the Erie County Water Authority until ten o'clock A.M. Daylight Saving Time on the twelfth day of September, 1957 at the office of the Authority, 338 Ellicott Square Building, Buffalo 3, New York, for furnishing materials and performing the labor for constructing a twenty-four (24") inch diameter water main in the City of Buffalo and the Town of Cheektowaga, Erie County, New York, all in accordance with plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Erie County Water Authority or from the Consulting Engineers upon deposit of Twenty-Five ($25.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within ten (10) days after the date on which bids are received or else the entire deposit will be forfeited.

The work to be done includes all materials and labor, tools, plant and equipment necessary for constructing, installing, testing and completing, ready for operation, approximately four thousand seven hundred and forty (4,740') feet of twenty-four (24") inch diameter water main with connections to existing mains, meter, valves and blow-off facilities, manholes and other accessories and appurtenances.

Each proposal must be accompanied by a certified check payable to the Erie County Water Authority or a bid bond to the favor of the Authority from a reliable surety company authorized to do business in the State of New York and satisfactory to the Authority, in amount equal to ten (10%) percent of the proposal. The certified check will be retained to pay for any damage or loss to the Authority, or the liability bond will accrue, in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

ERIE COUNTY WATER AUTHORITY
By: WILLIAM J. CARNEY
Secretary

Buck, Seifert and Jost
Consulting Engineers
Dated: August 16, 1957

Bids: October 24, 1957

Construction of Lewiston Power Plant Lewiston, Niagara County, N. Y.

POWER AUTHORITY OF THE STATE OF NEW YORK
ADVERTISEMENT FOR PROPOSALS
FOR
SPECIFICATIONS NO. PA-N 23003
NIAGARA CONTRACT NO. N3

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for the construction of Lewiston Power Plant and appurtenant works, located in Lewiston, Niagara County, New York, until 10:30 A.M. Eastern Daylight Saving Time on the 24th day of October 1957, at the Authority's Office, 18th floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The principal items of work are:
Estimated:

1,385,000	cu. yds.	Earth excavation
12,788,000	cu. yds.	Rock excavation all classifications
177,000	lin. ft.	Drill holes for exploration and grouting
1,050,000	cu. yds.	Concrete
30,000	tons	Reinforcing steel
350	tons	Miscellaneous metalwork
2,500	tons	Erection of structural steel
6,500	tons	Erection of gates, trash racks, stop logs, hatch covers and cranes
7,800	tons	Erection of turbines
2,600	tons	Handling of spiral casings
22,000	tons	Handling of generator parts and electrical equipment

The work shall be completed on or before December 31, 1961.

Plans, Specifications and Proposal Forms for the work, may be obtained from the Power Authority of the State of New York, at the Coliseum Tower, 18th Floor, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Fifty ($50,00) dollars per initial set of contract documents, and Twenty-Five ($25.00) dollars per set for additional sets, no part of which will be refunded. Plans, Specifications and Proposal Forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Mass., and may be inspected by prospective bidders during office hours.

Bids must be made in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 per cent of the gross sum price bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

Bids: September 19, 1957

Construction of Water Transmission Main

Notice is hereby given that sealed bids will be received in accordance with the law by the Erie County Water Authority until ten o'clock A.M. Daylight Saving Time on the nineteenth day of September, 1957 at the office of the Authority, 338 Ellicott Square Building, Buffalo 3, New York, for furnishing materials and performing the labor for constructing a twenty-four (24") inch diameter water transmission main in the Town of Cheektowaga, Erie County, New York, all in accordance with plans and specifications prepared by Buck, Seifert and Jost, Consulting Engineers, 112 East 19th Street, New York 3, New York.

Copies of the plans and specifications may be obtained either from the Erie County Water Authority or from the Consulting Engineers upon deposit of Twenty-Five ($25.00) Dollars, which sum will be refunded upon return of the plans and specifications in good condition within ten (10) days after the date on which bids are received or else the entire deposit will be forfeited.

The work to be done includes all materials and labor, tools, plant and equipment necessary for constructing, installing, testing and completing, ready for operation, approximately eight thousand four hundred (8,400') feet of twenty-four (24") inch diameter water transmission main with connections to existing mains, valves, air relief and blow-off facilities, manholes and other accessories and appurtenances.

Each proposal must be accompanied by a certified check payable to the Erie County Water Authority or a bid bond to the favor of the Authority from a reliable surety company authorized to do business in the State of New York and satisfactory to the Authority, in amount equal to ten (10%) percent of the proposal. The certified check will be retained to pay for any damage or loss to the Authority, or the liability bond will accrue, in case the successful bidder shall neglect or refuse to enter into a contract in accordance with his proposal.

The Authority reserves the right to consider bids for thirty (30) days after their receipt before awarding any contract and the right is reserved to accept any bid or to reject any or all of them.

ERIE COUNTY WATER AUTHORITY
By: WILLIAM J. CARNEY
Secretary

Buck, Seifert and Jost
Consulting Engineers
Dated: August 29, 1957

Bids: September 12, 1957.

Construction of Sewage Treatment Plant

NOTICE TO BIDDERS

Sealed proposals will be received until 11:00 A. M. EST, September 12, 1957, in the office of the City Commission of Fort Lauderdale, Florida for construction of Project No. 629, Sewage Treatment Plant "D".

Bidding blanks may be obtained from the office of the City Engineer. Plans, Specifications, and Contract Documents are on file in the office of the City Engineer.

A deposit of $25.00 for Plans and Specifications, and of $15.00 for each additional set of plans or specifications, will be required. All deposits for plans and specifications will be refunded upon their return in good condition within 10 days of the opening of bids.

A certified check, cashier's check or bank officer's check, for 2% of the total amount of the bid, made payable to City of Fort Lauderdale, Florida, shall accompany each proposal as evidence of good faith and responsibility of the Bidder. This check shall be retained by the payee as liquidated damages should the Bidder refuse or fail to enter into a contract with the payee for the execution of the work embraced in the Proposal, in the event the Proposal of the Bidder is accepted.

The City Commission reserves the right to reject any or all bids.

William J. Veeder
City Manager

Bids: September 12, 1957

Soil Explorations and Foundation Investigations

STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of Highway Law, sealed proposals will be received until 10:30 a.m. Advanced Eastern Standard Time, on September 12, 1957, by Henry A. Cohen, Director, Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y. for:

SOIL EXPLORATIONS AND FOUNDATION INVESTIGATIONS AT VARIOUS SITES ON INTERSTATE ROUTE 505, BINGHAMTON TO PENNSYLVANIA STATE LINE, PROJECT 1-1127(3), BROOME COUNTY, WHICH CONSTITUTES CONTRACT NO. SPEC. FA-SM-107.

Maps, plans and specifications may be examined and obtained at the following offices:

(a) Bureau of Contracts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany 1, New York
(b) Mr. Joseph C. Federick, District Engineer, New York State Department of Public Works, 71 Frederick Street, Binghamton, New York
(c) Mr. William M. Trainer, Associate Contract Engineer, Department of Public Works, 270 Broadway, New York City.

The deposit for a set of plans, specifications and proposal forms is $5.00. A refund in full will be made to bidders for return of one set in good condition within 30 days of award or rejection of bids; refund for all other sets in good condition, similar period, will be 50 percent of deposit.

The Engineer's Estimate of cost for this work is $40,000.00.

Proposal for this contract must be submitted in separate sealed envelope with the name of the contract plainly endorsed on the outside of the envelope. Proposal must be accompanied by draft or certified check, payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum of $2,000.00. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

The right is reserved to reject any or all bids.

J. W. JOHNSON
SUPERINTENDENT OF
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Excellent working conditions and employee benefits including liberal retirement program.
Openings in Pennsylvania, Maryland, Mississippi, Ohio & West Virginia.

Air Mail Resume to R. L. SHAW, *Personnel Director*

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BAKER BLDG. *Consulting Engineers* ROCHESTER, PA.

ESTIMATORS, ENGINEERS, SUPERINTENDENTS
FOR CHEMICAL, POWER PLANT, AND PAPER MILL CONSTRUCTION

Wanted immediately for construction work in Southeastern and Southwestern states:

3—Topnotch piping and mechanical estimators
4—Field pipe fabrication detailers
3—Field Engineers for general construction
2—Field Engineers for setting process equipment
3—Pipe superintendents
2—Millwright superintendents
2—Rigging superintendents
1—General Superintendent
3—Building construction and concrete superintendents
2—Boiler erection superintendents

Forward resume of experience, education, and personal background together with salary level and references.

P-5897—Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

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GRADUATE ENGINEERS WITH ONE TO FIVE YEARS EXPERIENCE FOR HIGHWAY AND BRIDGE DESIGN IN NEW ORLEANS, LOUISIANA OR IN HARRISBURG, PA.

Permanent positions with opportunity for Advancement.
Company paid life insurance and Pension Plan
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2400 Canal Street
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ENGINEERS

Long established firm of consulting engineers with world-wide practice needs both beginners and experienced civil, electrical, mechanical and foundation engineers for interesting work on large dams, powerplants, and river control works. Permanent positions. Liberal employee benefits. Starting salaries dependent on qualifications. Please send complete resume to Hugo Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

Employment Opportunities with the City of Springfield, Missouri

CHIEF DIVISION OF GENERAL PUBLIC WORKS OPERATIONS: Graduate Civil Engineer, age 30 to 50, for responsible professional and administrative work in the operations of the Department of Public Works.

SECTION HEAD: Graduate Civil Engineer to head paving or storm sewer design section. Must be capable of performing detailed design work as well as supervise subordinate personnel engaged in such activities.

The City of Springfield also has need of Designers, Draftsmen and Construction Inspectors.

Application for any of the above jobs should be made, giving minimum salary, to Department of Personnel, City Hall, Springfield, Missouri.

HIGHWAY & BRIDGE ENGINEERS

Well established Consulting Engineer has immediate openings for engineers experienced in Highway and Bridge design and construction. Permanent positions. Liberal Employee benefits. Salaries commensurate with education and experience. Send complete resume including salary requirements and availability.

WILLIAM H. McFARLAND
ENGINEER
333 Front Street Binghamton, New York

REPLIES (Box No.): Address to office nearest you
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NEW YORK: P. O. Box 12 (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

Gunite Superintendent—Wanted Immediately. Middle Atlantic States. State age, experience, availability, salary desired. P-4640, Engineering News-Record.

Engineer-Gunite, wanted immediately, must know estimating, take complete charge of all gunite operations. Executive position ultimately available. P-5355, Engineering News-Record.

Beginning Civil Engineer—Recent graduate. Mount Clemens, Michigan. Near Lake St. Clair. 20 miles Northeast of Detroit. Annual salary $5,122-$5,902. P-5509, Engineering News-Record.

Civil Engineers, Florida—Expanding consulting office on middle east coast of Florida has opening for professional grade field and office engineers experienced in municipal work including utilities. Write complete qualifications to: Alton A. Register and Associates, Engineers, 204 Professional Building, Fort Pierce, Florida.

Estimator Wanted—Plumbing, Heating, Mechanical Piping. Top Notch, experienced man. Salary commensurate with experience and ability. Permanent position. Liberal company benefits. Air conditioned office. Submit full resume of experience to Charles Simkin & Sons, Inc., Att: S. Simkin, P. O. Box 471, Perth Amboy, N. J.

Resident Engineer Inspector with experience on disposal plant construction. Write direct to Hill & Hill Engineers, 8 Gibson Street, North East, Pennsylvania.

Civil Engineer with sanitary engineering experience or education wanted by Consulting Engineering Firm. Write P-5867, Engineering News-Record.

Engineers for municipal and industrial water supply, sewerage and treatment projects. Opportunities for permanent connection with long established firm of consulting engineers in mid-west. Both E.I.T.'s and engineers considered. Full information and references in first letter requested. P-5889, Engineering News-Record.

Valuation Engineers—The Oregon State Tax Commission offers permanent career positions in an expanding program of industrial and utility property valuation to graduate engineers. Contact: Personnel Division, Oregon State Tax Commission, Salem, Oregon.

Architect's Superintendent — Two years steady work for qualified men. Submit details. P-5972, Engineering News-Record.

Structural and civil engineer with bridge design and highway experience. General consulting practice. Can lead to associate status. Man with well-rounded ability and interest takes precedence over highly specializied individual. Location: Central New Hampshire. P-5965, Engineering News-Record.

Engineer, Electrical, Civil, or Mechanical for Industrial concern in Northeastern N. C., employing 700. For general engineering (analysis, layout, design and follow-up) in highly mechanized and automated production division of expanding national organization. Two to ten years engineering experience desired. Starting salary $425—$650 per month, depending upon qualifications. Apply to: P-5943, Engineering News-Record.

HEAVY CONSTRUCTION ESTIMATOR WANTED

Highest grade man wanted; must be graduate C.E., experienced in large concrete structures, bridges, elevated highways, pumping stations, flood control projects, industrial construction, etc.; able to make correct quantity surveys and prepare possibly with some assistance in the beginning complete estimates. Location Chicago office of large engineering contractor. Permanent position, commensurate salary. Please state age, education, short experience outline, present salary, references, who will not be contacted without your consent, and when available.

P-5915—Engineering News-Record
520 N. Michigan Avenue, Chicago 11, Ill

Structural Designers
Structural Draftsmen

HIGHWAY BRIDGE EXPERIENCE PREFERRED
ALSO RECENT GRADUATES

Highway Designers

SENIORS AND INTERMEDIATE

PERMANENT POSITION

BROWN & BLAUVELT
Consulting Engineers
44 COOPER ST., WOODBURY, NEW JERSEY

CIVIL ENGINEER

With prestressed concrete design experience wanted by growing company able to offer a real opportunity to the right man. Should be familiar with production methods and construction practices. Unusual opportunity. Open on age and salary. All replies confidential. Interviews will be held in your city. Please send us information about your education, experience and present salary. Write

P-5957, Engineering News Record
520 N. Michigan Ave., Chicago 11, Ill.

POSITIONS VACANT

Northern New Jersey Construction Co. has an opening in its Estimating Department. Must have previous experience in estimating sewer lines, earth moving, and road work. Send resume salary requirements. P-5818, Engineering News-Record.

Wanted—Experienced asphalt plant supervisor for a Cedar Rapids Plant located in Bermuda. Reply stating experience and salary requirements. P-5929, Engineering News-Record.

Civil Engineers to work with consulting engineering firm. Long established municipal consulting firm desires to secure graduate civil engineers for permanent positions. Experience in water and sanitation required. Offices located in very desirable small college community in Colorado area. Expansion of firms operations provide unlimited opportunities for advancement for properly qualified engineers. Firm desires to employ engineers with from one to fifteen years of experience. Salaries $5,100 to $6,600. Civil engineers with masters degree in sanitary engineering or masters degree in structural design also required. Salary commensurate with experience. Please give experience and full details in reply, including transcript of post-graduate work. Replies will be held confidential if requested. P-5570, Engineering News-Record.

POSITIONS WANTED

Asphalt Plant Superintendent. cost engineer —& estimator, 6 yrs. Batch and continuous plants. Age 34, Seeking permanent position in Florida. PW-5734, Engineering News-Record.

General Engineer, BS, age 30, 7 years construction experience, engineering and design, purchasing, estimating and supervision. Desires relocate in Carolinas. Plant engineering or building construction. PW-5770, Engineering News-Record.

ENGINEERS

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Career opportunities for graduate engineers with minimum 6 years experience supervising maintenance engineering functions in oil refining or producing facilities, power plants, heavy industrial installations and supporting community facilities. For work in Saudi Arabia as Staff Engineers. Also opportunity for engineers with production control experience.

High salary plus living allowance and liberal all-inclusive benefits conducive to large savings. Excellent community facilities.

Write outlining background and experience. Please include telephone number.

Recruiting Supervisor, Box 215

ARABIAN AMERICAN OIL COMPANY
505 PARK AVENUE
NEW YORK 22, NEW YORK

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For a $40 million rockfill and concrete dam in Iraq. Two-year contract; approximately 3-year completion schedule. Family housing at site, but no local educational facilities for children. Fill type dam construction experience required—preferably rockfill. Must be fully capable of assuming duties of Resident Engineer as required. Position is available immediately. Excellent salary. Please send complete personal and experience record to Hugo O. Niemi, Personnel Manager.

HARZA ENGINEERING CO.
400 W. Madison St. Chicago 6, Ill.

CIVIL ENGINEER

Young civil engineer interested in broad application of civil engineering.

Excellent opportunity with consulting firm. Liberal benefit plans and good working conditions. Location Middle West.

Send resume of education and experience with salary requirements to:

P-3223, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ARCHITECTURAL ENGINEER

Architectural Engineer between ages of 25 and 35 with interest in design of industrial buildings and structures.

Excellent opportunity with consulting engineering firm in Middle West. Liberal benefit plans and good working conditions.

Send resume of education and experience with statement of salary requirements to:

P-3222, Engineering News-Record
520 No. Michigan Ave., Chicago 11, Ill.

ESTIMATOR WANTED

A large heavy works contractor operating nationally, with headquarters in Midwest, needs the services of competent estimator. Must be experienced, particularly in highway construction field, in taking off quantities and evaluating heavy grading, structures, paving and drainage. Position requires considerable travel. Adequate compensation plus profit sharing and pension benefits to qualified man.

P-5904—Engineering News-Record
Class. Adv. Div., P. O. Box 12, N. Y. 36, N. Y.

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WANTED
STRUCTURAL ENGINEER
AND
SANITARY ENGINEER

To become principals in consulting firm.

A large, well established consulting engineering firm in southeast needs design-administrative structural engineer and sanitary engineer to become principals and head these departments. For brochure and details write

P-5849, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Civil Structural Hydraulic

Highways, Flood Control and Navigation, Industrial and Institutional Buildings, Sewage Treatment and Water Works. Design and Reports.

Other excellent opportunities in Mechanical and Electrical Engineering with Consulting Firm. Location Middle West.

Send resume of education and experience with salary requirements to:

P-5582, Engineering News-Record,
520 N. Michigan Ave., Chicago 11, Ill.

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14 MAN DRAWING ROOM AVAILABLE FOR SUBLET WORK. EXPERIENCED, REPUTABLE, REFERENCES.

CWW-5951, Engineering News-Record, 520 N. Michigan Ave., Chicago, Ill.

CONSTRUCTION ENGINEER Opening WASHINGTON Office

Registered civil with gen'l. contr. and consltg. engr. background now available to handle business in area for organizations in construction industry, A&E firms, etc.

RA-5949, Engineering News-Record, Class. Adv. Div., P.O. Box 12, N.Y. 36, N.Y.

POSITIONS WANTED

Hydraulic engineer; over 20 years experience (5 foreign) on all types river developments including irrigation, hydro-electric, storage, pumping, supply, control, drainage, Age 45; writes, reads, converses fluently in Spanish. PW-5771, Engineering News-Record.

Civil Eng. 31, married, B.C.E. Grad. Studies in soil, desires position as Resident or Assist. Resident Eng., Project or Assist. Project Manager, now employed overseas, speaks Spanish, overseas position preferred. PW-5823, Engineering News-Record.

Cost Engineer—32, 5 years field experience in fast multi-million chemical construction including electrical and piping controls. PW-5794, Engineering News-Record.

Structural Steel: 21 years experience in detail, checking and chief draftsman. Desire to re-locate midwest, west or southwest. Supervision only. PW-5839, Engineering News-Record.

Electrical Construction Superintendent avail-able Sept. 1. Twenty-five years heavy industrial construction experience, including aircraft plant construction. Location near Santa Anna, Calif. desired. Excellent references PW-5895, Engineering News-Record.

POSITIONS WANTED

Building Construction Field Supt: Industrial, commercial, institutional, churches, etc., similar position in field desired. 25 years exp; Resident of N. J.; Can travel. PW-5912, Engineering News-Record.

Civil Engineer, B.S.c (Eng.) 30, married. 5 years broad experience in engineering design & construction (Civil, Structural & Hydraulic) work. Desires responsible position with progressive firm operating in Latin America. Fluent knowledge of Spanish. Present location Canada. PW-5887, Engineering News-Record.

Highway Engineer, P.E., 25 yrs. excellent highway and bridge experience with State and private industry desires to make valuable contribution to Highway Program for N. Y. area Consultant. PW-5908, Engineering News-Record.

Construction Superintendent, 34, college graduate, 12 years experience in all phases construction including engineering, purchasing and estimating. PW-5913, Engineering News-Record.

Top executive of going western heavy engi-neering and bldg. const. firm seeks change for personal reasons, 42 yrs old, in charge of planning and const, wide experience. PW-5893, Engineering News-Record.

Gunite man experienced in concrete repairs and pressure grouting. PW-5927, Engineering News-Record.

Chief Draftsman or Engineer Structural Steel. Proven administration ability in detailing, checking and designing. Interested in change with reliable fabricating Co. PW-5921, Engineering News-Record.

Chief estimator—heavy constr.—15 yrs. exp. field & office. Bridges, highways, marine work, foundations. PE 37, N.Y.C., L. I., Westch. PW-5923, Engineering News-Record.

Civil Engineer, 29, BCE, Registered Illinois, 5 yrs experience design & inspection streets, highways, water and sewer systems, surveys and reports. Presently principal associate in small consulting firm. PW-5924, Engineering News-Record.

POSITIONS WANTED

Registered Civil Eng.—22 yrs. R.R. Bridge and Bldgs. also some Highway and Gov't. work. Age 51. Desires supervisory position utilizing past experience. PW-5953, Engineering News-Record.

Senior Hydraulic Engineer available for either U. S. or foreign assignment. Experience on river development projects—irrigation—dams—drainage and flood control. PW-5958, Engineering News-Record.

Structural engineer with B.S., M.S., and C.E. degrees in structures desires employment in or research. Age 27. Will be discharged as Lieutenant (jg) from Civil Engineer Corps in November 1957. Prefer Western U.S. PW-5963, Engineering News-Record.

Age 37—17 yrs. experience in structural steel detailing, checking & estimating with structural fabricating company, considering change as chief draftsman with reliable Co. PW-5964, Engineering News-Record.

C.E., 35, Graduated Norwegian Institute of Technology, 7 years airbase designer and resident engineer in Europe, ½ year highway designer in U.S.A. Consultant or construction. Will also consider position north or overseas. Available soon. PW-5969, Engineering News-Record.

Structural Eng. M.S. in C.E. experience in building design wants to relocate in New York. PW-5981, Engineering News-Record.

PART-TIME WORK WANTED

Bldg. Estimator, 7 yrs. exp., located in Albany, N. Y. Seeks part time work preparing quantity surveys or complete estimates for Gen. or Sub Contractor. PTWW-5955, Engineering News-Record.

Designing and Drafting service offered by Registered Professional Civil Engineer and Competent Draftsmen on hourly or contractural basis. Located in Phila., Pa. PTWW-5961, Engineering News-Record.

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Land for sale in Govan, Glasgow, near Shipbuilding and Engineering Centre, Extending to 12,000 square yards. Suitable for industrial Works. Good rail transport. Present Brick Buildings extend over half area, but easily demolished if necessary.

Write 1362—Wm. Porteous & Co., 9, Royal Exchange Street, Glasgow, Scotland.

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1 Drumm St. — San Francisco 11

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SAN FRANCISCO: 68 Post St. (4)

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Construction Estimating! Reliable architec-tural & structural work with accurate take-offs on buildings with foundations. SS-5982, Engineering News-Record.

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1—American Conveyor, 12-20, Con-vay-it "T" Elec.		400.00
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1—Whitcomb 2½ ton Battery Locomotive with 2 batteries and Charger		2,500.00
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Tel. WAbash 1-3240

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EUCLID 15-Ton Rear Dumps

2—25FD, Cummins Diesel, Late 1949.
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All with standard bodies and in good condition.

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57 lbs., 45 to 65 ft. long
Location: Baltimore, Md.

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FOR SPEED ECONOMY EFFICIENCY FLOOD SAFETY LABOR REDUCTION

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380 pcs. 60 ft Beth. DP-2—New York
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244 pcs. 35 ft. Carn. M116—Wisconsin
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Railway Exchange Bldg.
St. Louis 1, Mo. CHestnut 1-4474

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12 Pcs. 14" BP 102# x 35/55 ft.
W F-H beams VP to 36" 300#

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WAlnut 2-7070

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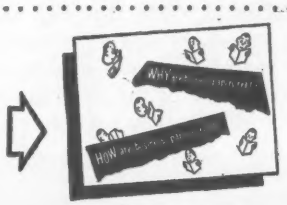

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Another Try for Unity

ANOTHER PLAN for unifying the engineering profession has been placed before the engineers of this country for their consideration (ENR July 17, p. 23). This one is unique in that it has the endorsement of the board of one of the large Founder engineering societies, the American Institute of Electrical Engineers, which also is one of the main contributors to the support of Engineers Joint Council.

Briefly, the new plan sets up the National Society of Professional Engineers as the unifying organization in all economic and professional matters, provided the NSPE will open its membership to unregistered engineers. Engineers Joint Council would be continued, but its function would be changed radically, being limited to coordinating the purely engineering activities of the sponsoring societies. Also, the big engineering societies that originally set up EJC as their spokesman on national questions affecting engineers would be required to drop their economic and welfare activities, delegating all such work to NSPE. Finally, all decisions on educational matters would be turned over to the Engineers' Council for Professional Development as the coordinating agency in that field.

The prospects for this newest unity proposal do not appear to be bright. One obstacle to its acceptance is the requirement that the National Society of Professional Engineers open its doors to men who are not registered as professional engineers. Registration is the keystone of the arch supporting NSPE. To suggest that this requirement be dropped is not realistic.

Nor does it seem probable that all the societies now sponsoring the Engineers Joint Council are ready to scrap practically all it has done and is doing on national and economic issues, as proposed under the new unity plan. Those societies would not have the same voice in the affairs of NSPE that they now have in EJC. Similarly, we doubt that the Founder Societies are ready to drop all their non-engineering activities. That appears especially true of the American Society of Civil Engineers which for years has been active on economic issues affecting engineers.

The weakness of this latest unity plan is that it brushes aside these realities. It ignores the fact that the National Society of Professional Engineers, although continually growing in membership and prestige, is not yet in a position to speak for the entire profession. It disregards the considerable accomplishments of Engineers Joint Council in providing a vehicle for unified leadership on both the technological and professional fronts. And it assumes that unity can be achieved by fiat instead of by evolution.

As a first step in this evolution, NSPE should become a member of EJC. Working from within and in concert with the present constituent societies of EJC, it could—without in any way losing its identity or compromising its objectives—help the entire profession on the road to unity. Any plan drawn up now, which contemplates turning aside either NSPE or the EJC, is doomed to failure.

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Without question this is choice real estate, destined to appreciate in value and well guarded from undesirable encroachments. But disregarding these commercial advantages, the site is a fine one for engineering headquarters because of its neighbor, the United Nations. Here, where reside the hopes for world peace and prosperity, engineering has a proper and vital place.

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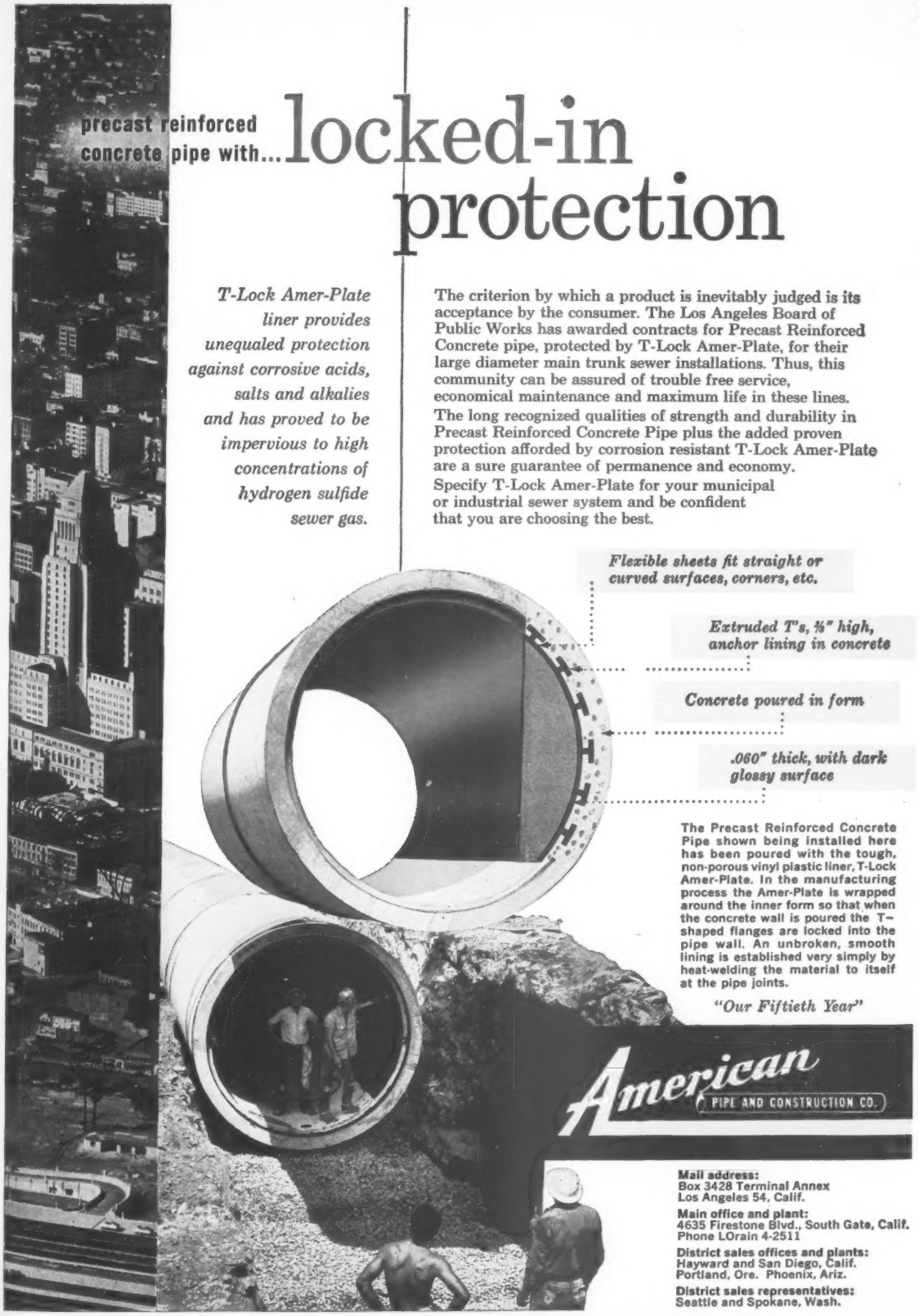
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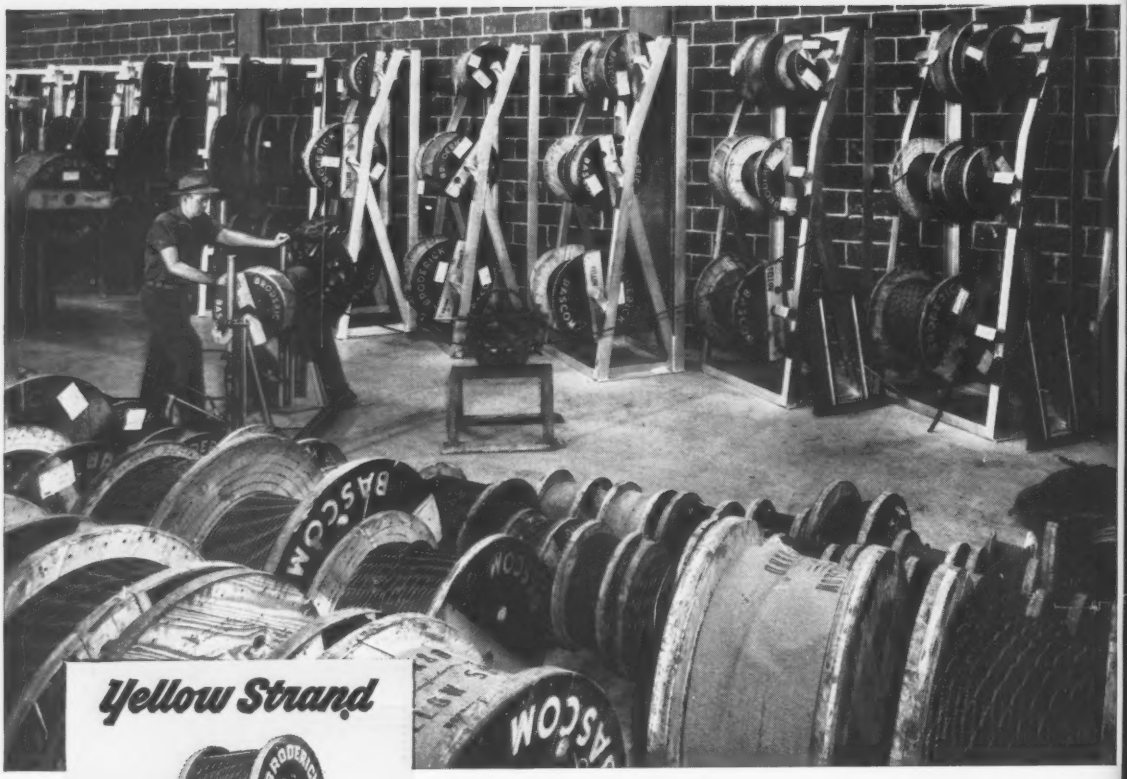

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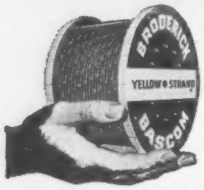

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Add to that the extra qualities of wear resistance, shock resistance and long life manufactured into Yellow Strand products and you have a hard-to-beat combination.

Wherever your job may be Yellow Strand is near at hand. Distributors and factory warehouses are located throughout the entire U.S.A. Call them for the service of an expert, and longer rope life.

Where you see Yellow Strand at work, you'll see wire rope records of long life and dependability. Steady, day after day performance proves Yellow Strand's toughness, ability to "take" shock and wear of heavy loads.

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